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No. 04-

IN THE
Supreme Court of the United States

HONEYWELL INTERNATIONAL INC.
AND HONEYWELL INTELLECTUAL PROPERTIES INC.,

Petitioners,

v.

HAMILTON SUNDSTRAND CORP.,

Respondent.

On Petition For Writ Of Certiorari To The United States Court Of Appeals For The Federal Circuit

PETITION FOR CERTIORARI

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QUESTIONS PRESENTED

Patent claims may issue in independent or dependent form. Dependent claims, which by statute incorporate all of the limitations of the independent claim on which they depend, are designed to simplify the application process and make patents easier to read and understand. Patent applicants are encouraged to utilize dependent claims through reduced filing fees. Similarly, patent applicants typically describe their invention in a variety of different claims of different scope during the application process. The divided *en banc* opinion of the Federal Circuit below will have a dramatic negative effect on each of these practices. The questions presented for review are:

1. In light of 35 U.S.C. § 112 ¶ 4, is the rewriting of a dependent claim in independent form, combined with the cancellation of the antecedent independent claim, a narrowing amendment that gives rise to a *Festo* presumption of prosecution history estoppel?

2. Does a *Festo* presumption of estoppel arise whenever a broader claim is rejected and cancelled during prosecution and a separate narrower claim issues, even though the narrower claim was never itself amended during prosecution?

RULE 29.6 STATEMENT

The Petitioners are Honeywell International Inc. and Honeywell Intellectual Properties Inc. Honeywell International Inc. is publicly held and has no parent. State Street Bank holds 11.9 percent of the stock as trustee under the company's savings plan. Honeywell Intellectual Properties Inc. is 100 percent owned by Honeywell International Inc. At the time this lawsuit was filed, Honeywell International Inc. was known as AlliedSignal Inc. and Honeywell Intellectual Properties Inc. was known as AlliedSignal Technologies Inc. For ease of reference, Petitioners will herein be referred to collectively, unless otherwise noted, as "Honeywell."

TABLE OF CONTENTS

INTRODUCTION 1

OPINIONS BELOW 2

JURISDICTION 2

PERTINENT CONSTITUTIONAL AND STATUTORY PROVISIONS 2

STATEMENT OF THE CASE 3

A. Background 3

B. The District Court Proceedings 7

C. The Federal Circuit Proceedings 8

REASONS FOR GRANTING THE WRIT 11

I. The Federal Circuit Erred in Holding that the Rewriting of a Dependent Claim in Independent Form, Combined with the Cancellation of the Antecedent Claim, was a Narrowing Amendment that Gives Rise to the Festo Presumption of Prosecution History Estoppel. 11

A. The Federal Circuit's Decision Is Contrary to 35 U.S.C. § 112, ¶ 4. 12

B. The Federal Circuit's Decision Is Contrary To This Court's Decision In *Festo* And Contrary To The Position Of The United States. 14

C. The Federal Circuit's Decision Will Disrupt the Patent Prosecution Process. 15

II. The Federal Circuit Erred in Holding that a *Festo* Presumption of Estoppel Arises Whenever a Broader Claim is Rejected and Cancelled During Prosecution and a Separate Narrower Claim Issues, Even if the Narrower Claim was Never Itself Amended During Prosecution. 17

A. The Federal Circuit's Holding Produces a New Form of Estoppel, Not Supported By Either *Festo* or *Warner-Jenkinson*. 18

B. The New Rule Announced By The Federal Circuit Produces Unbounded Estoppel. 20

C. The Federal Circuit's Decision Disrupts the Settled Expectations of Patent Owners and the Public. 22

CONCLUSION 25

TABLE OF AUTHORITIES

CASES

Bloom Eng'g Co., Inc. v. North Am. Mfg. Co., Inc.,
129 F.3d 1247 (Fed. Cir. 1997) 13

Bose Corp. v. JBL, Inc.,
274 F.3d 1354 (Fed. Cir. 2001) 14

Deering Precision Instr. v. Vector Distribution Sys.,
Inc., 347 F.3d 1314 (Fed. Cir. 2003) 12

Festo Corp. v. Shoketsu Kinzoku Kogyu Kabushiki
Co., 535 U.S. 722 (2002) ..... *passim*

Festo Corp. v. Shoketsu Kinzoku Kogyu Kabushiki
Co., 344 F.3d 1359 (Fed. Cir. 2003) 9

Graver Tank & Mfg. Co. v. Linde Air Prods. Co.,
336 U.S. 271 (1949) 1, 24

Insta-Foam Products, Inc. v. Universal Foam
Systems, Inc., 906 F.2d 698 (Fed. Cir. 1990) 13

Ranbaxy Pharm., Inc. v. Apotex, Inc.,
350 F.3d 1235 (Fed. Cir. 2003) 12

Vermeer Mfg. Co. v. The Charles Machine Works,
Inc., 251 F.3d 168 (Fed. Cir. 2000) 14

Warner-Jenkinson Co. v. Hilton Davis Chem. Co.,
520 U.S. 17 (1997) 1, 9, 11, 14, 18, 21, 22

STATUTES

U.S. CONST. Art. 1, § 8, cl. 8 2

35 U.S.C. § 112 ..... *passim*

35 U.S.C. § 271(a) 2

28 U.S.C. § 1254(1) 2

28 U.S.C. § 1295(a) 2

28 U.S.C. § 1338(a) 2

MISCELLANEOUS

111 Cong. Rec. H5,267 (daily ed., Mar. 17, 1965 16

H.R. Rep. No. 89-113 (1965) 16

S. Rep. No. 89-301 (1965) 16

Amicus Brief of the United States, filed in *Festo Corp. v. Shoketsu Kinzoku Kogyu Kabushiki Co.*, 2001 WL 1025650 15

INTRODUCTION

The Court has on several occasions, most recently in *Festo Corp. v. Shoketsu Kinzoku Kogyu Kabushiki Co.*, 535 U.S. 722 (2002), sought to clarify the balance between two critical patent law concepts: the doctrine of equivalents and prosecution history estoppel. Under the well-settled doctrine of equivalents, "a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997). The doctrine of equivalents dates back to the very earliest days of the patent laws and was developed by this Court to prevent "the patent grant [from being turned into] a hollow and useless thing." *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 336 U.S. 271, 271 (1949). Prosecution history estoppel, on the other hand, came about later as a way to "reduce the uncertainty" regarding "what is a permitted alternative to a patented invention and what is an infringing equivalent" by preventing patentees from claiming as an equivalent embodiments that were disclaimed during patent prosecution. *Festo*, 535 U.S. at 726. In both *Festo* and *Warner-Jenkinson*, this Court reviewed and reversed divided *en banc* decisions by the Federal Circuit that had unduly limited the doctrine of equivalents. This petition asks the Court to resuscitate the doctrine of equivalents from yet another dramatic and unprecedented attack by a divided *en banc* Federal Circuit that will have the effect of imposing prosecution history estoppel in nearly every patent litigation.

In this case the Federal Circuit *en banc* majority "change[d] the law in two new ways. The first way is directly contrary to statute. The second is simply another restriction on equivalency, far exceeding the holdings of the Supreme Court in *Festo* and *Warner-Jenkinson*." Appendix ("App.") at 26a (Newman, J., dissenting). Unless reversed by this Court, the

decision below so dramatically expands the application of prosecution history estoppel – finding that it presumptively precludes all equivalents to a limitation that was not added, amended or rejected during prosecution – that it would deprive the vast majority of patent holders of the protection of the doctrine of equivalents. Accordingly, for the same reason that the Court granted certiorari to protect the doctrine of equivalents from the divided *en banc* Federal Circuit in *Festo* and *Warner-Jenkinson*, it should grant certiorari here.

OPINIONS BELOW

The Federal Circuit opinion is reported at 370 F.3d 1131 (2004) (*en banc*) and is reprinted in the Appendix at App. 1a-40a. The district court's opinion denying post-trial motions is reported at 166 F.Supp.2d 1008 (D. Del. 2001) and is reprinted at App. 41a-98a. The district court's opinion on summary judgment is unreported, but can be found at 2001 WL 66348 (D. Del. Jan. 8, 2001), and is reprinted at App. 99a-112a.

JURISDICTION

The judgment of the United States Court of Appeals for the Federal Circuit was entered on June 2, 2004. The jurisdiction of this Court is invoked pursuant to 28 U.S.C. § 1254(1). The Federal Circuit had jurisdiction over the appeal pursuant to 28 U.S.C. § 1295(a). The District Court had jurisdiction over the original proceeding pursuant to 28 U.S.C. § 1338(a).

PERTINENT CONSTITUTIONAL AND STATUTORY PROVISIONS

Article 1, section 8, clause 8 of the Constitution provides: "Congress shall have the power ... to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their Respective Writings and Discoveries."

35 U.S.C. § 271(a) provides: "Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell,

or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefore, infringes the patent."

35 U.S.C. § 112, ¶ 4 provides: "Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers."

STATEMENT OF THE CASE

A. Background

After ten days of trial in February 2001, a jury found that Sundstrand willfully infringed all six asserted patent claims and awarded Honeywell $46.6 million in damages. App. 42a. A three-judge panel of the United States Court of Appeals for the Federal Circuit heard argument in August 2002 but did not issue an opinion. App. 113a. Instead, reflecting the broad and widely applicable issues that this case raises, the Federal Circuit issued a *sua sponte* order in February 2004 that the appeal would be decided *en banc*. *Id.* The Federal Circuit subsequently rejected Honeywell's request to submit supplemental briefing and/or argument, even though the parties' briefs had been submitted to that court before this Court's defining *Festo* decision issued. App. 114a-115a.

The *en banc* Federal Circuit's decision below was delivered on June 2, 2004, with Judge Dyk writing on behalf of the majority and Judge Newman issuing a forceful dissent. App. 1a-40a. Judge Newman characterized the majority's holding as "a new and unwarranted enlargement of *Festo's* law of presumptive surrender, to hold that this presumption arises automatically as to elements that were never rejected, never amended, and never at issue during prosecution, whenever a broader claim is cancelled." App. 34a. Judge Newman further critiqued the majority holding by noting that they "not only

impose the presumptive surrender of *Festo*, but also presume estoppel against the entire universe of technology. That is, instead of presuming surrender of the territory between the original scope of the claimed element and the scope of that element after a claimed amendment – the rule developed in *Festo* – the court now presumes unlimited surrender when an element was not originally claimed at all and therefore presents no outer limit of surrendered territory." App. 28a.

This Court should grant the petition and review the decision below in order to correct this unprecedented and unwise decision.

Petitioner Honeywell is the owner of two U.S. Patents at issue – 4,428,194 and 4,380,893. The '194 and '893 patents relate to compressor bleed air control of auxiliary power units or "APUs." App. 3a. An APU is a gas turbine engine, typically located in the tail section of large commercial aircraft, used to supply compressed air and electrical power to the aircraft before the main engines are started, such as when the aircraft is parked at the gate. *Id.* Honeywell has been the leading pioneer in APU technology since it manufactured the very first APU over fifty years ago.

Briefly stated, an APU utilizes a load compressor to draw in ambient air, compress that air, and supply the appropriate amount of compressed air for the aircraft's varying demands. App. 3a. Because the aircraft's need for compressed air can vary greatly over short periods of time, there is a risk of flow instability called "surge." *Id.* Surge occurs when there is insufficient airflow through the load compressor, preventing air from exiting the compressor and instead causing it to reverse direction and surge back. *Id.* The resulting flow and pressure instability can damage or destroy the aircraft's APU. *Id.*

In order to prevent surge, a surge control system is needed, ensuring that the rate of airflow through the load compressor is maintained above a minimum required flow level. App. 3a.

Such systems typically employ a surge control valve (also known as a "surge bleed valve") to vent or bleed air from the discharge side of the compressor to the atmosphere while maintaining flow above the minimum level. *Id.* Prior art systems operated by drawing in significantly more air than was needed, thereby providing a wide safety margin against surge, but also operating inefficiently, as the energy used to compress the excess air was unnecessarily wasted. *Id.*

Honeywell's '194 and '893 patents claim several novel methods and apparatuses for efficiently controlling surge in an aircraft APU. The patented control systems operate the APU's load compressor at a constant minimum flow rate very close to the surge limit, thus minimizing the amount of air that is diverted to exhaust by the surge bleed valve and avoiding unnecessary excess surge bleed air. App. 3a-4a.

To achieve efficient and safe operation close to the surge limit, the Honeywell patents monitor a flow-related parameter that measures the air flow out of the compressor. App. 4a. The patented systems also monitor the position of the "inlet guide vanes," which are regulators that open and close like Venetian blinds over the air inlet of the load compressor in order to control the amount of air that is drawn through the compressor. *Id.*

The '194 and '893 patents originated in a single application, serial no. 235,794, filed on February 19, 1981. App. 4a. In September 1982, the Patent Examiner required Honeywell to divide its application into two separate parts: original claims 1-40, claiming apparatuses for controlling surge, stayed with the original application, while original claims 41-52, covering methods for controlling surge, were split into a separate application. App. 108a. Thereafter, Honeywell's prosecution of the two applications proceeded on separate tracks. In the end, certain of Honeywell's apparatus-only claims issued in the apparatus-only '893 patent and certain of Honeywell's method claims issued in the method-only '194 patent. App. 100a.

Honeywell asserted six patent claims at trial: independent claim 4 of the '194 patent, and independent claims 8 and 19 and dependent claims 10, 11 and 23 of the '893 patent. App. 11a. During prosecution, none of these claims was amended and narrowed for reasons related to patentability. The jury found that Hamilton Sundstrand had infringed each of the asserted claims under the doctrine of equivalents. *Id.*

Independent claim 4 of the '194 patent was original application claim 51, a dependent claim. App. 8a-9a. In his initial substantive action on claim 51, the Examiner objected to claim 51 solely on the basis that he simultaneously rejected the independent claim on which claim 51 depended; the Examiner indicated that claim 51 would be "allowed if rewritten in independent form." App. 109a. Accordingly, Honeywell rewrote claim 51 in independent form and it issued, unchanged, as claim 4 of the '194 patent. App. 9a. Similarly, independent claims 8 and 19 of the '893 patent were originally dependent claims 17 and 35 and were objected to by the Examiner because the claims on which they depended were rejected. App. 8a-9a. Again the Examiner indicated that the claims would be allowed if rewritten in independent form. *Id.* Accordingly, as it did with original claim 51, Honeywell rewrote original claims 17 and 35 to incorporate expressly the limitations of the rejected independent claims, and they eventually issued, unchanged, as claims 8 and 19 of the '893 patent. App. 9a.

Importantly, the limitation of claims 4, 8 and 19 that was the focus of the doctrine of equivalents dispute at trial was the control system's use of inlet guide vanes. This limitation was present in each of the original, dependent claims, but did not appear in any of the original, cancelled independent claims. App. 8a-9a. The inlet guide vane ("IGV") limitation was never narrowed or amended for any reason at all, as it appeared identically in original claims 51, 17 and 35 and issued claims 4, 8 and 19. App. 4a-6a, 8a-9a. It is also undisputed that other than the formal change of rewriting the originally dependent

claims in independent form, Honeywell made absolutely no changes to the asserted independent claims during prosecution. In addition, because the form (independent or dependent) of a claim does not change its scope, the scope of the asserted claims was never expanded or narrowed during prosecution.

The patented inventions were incorporated into many of Honeywell's APU models in the early 1980s and were a huge commercial success. These APUs continue to be used on Boeing 737 and 757 aircraft as well as the Airbus A320, 330 and 340 models.

Sundstrand began developing the infringing APS 3200 APU in the late 1980s with the explicit purpose of creating an APU for large commercial aircraft that would be comparable to and could compete effectively with Honeywell's APUs. During the development of the APS 3200, Sundstrand reviewed internal Honeywell documents describing Honeywell's APU design and conducted multiple tests on the Honeywell machine to determine its principles of operation. App. 91a. Utilizing Honeywell's patented surge control system, Sundstrand has enjoyed substantial commercial success with its APS 3200. Since the APS 3200 entered the market, Sundstrand and Honeywell have been the only two worldwide suppliers of APUs for large commercial aircraft. App. 79a.

B. The District Court Proceedings

Honeywell filed its complaint alleging infringement of the '194 and '893 patents in the U.S. District Court for the District of Delaware in May 1999. App. 8a. Extensive discovery took place: each side produced more than 225,000 documents, 29 witnesses were deposed for a total of 48 days, and 15 expert reports were exchanged.

The parties filed numerous summary judgment motions in late 2000. As relevant to this petition, Sundstrand filed a motion seeking to apply prosecution history estoppel to Honeywell's claim for infringement under the doctrine of

equivalents on the alleged basis that claims 8 and 19 of the '893 patent and claim 4 of the '194 patent had been narrowed by amendment during prosecution. App. 105a-112a. On January 8, 2001, the district court (Sleet, J.) rejected Sundstrand's argument for prosecution history estoppel, holding that "Honeywell did not give up an embodiment of the invention with the inlet guide vane," such that "the elements at issue were not surrendered" during prosecution. App. 111a.

Trial commenced on February 5, 2001 in front of an eight-person jury and concluded on February 16, 2001. App. 42a. During the ten trial days, twelve witnesses testified live and another seven were presented by deposition testimony. The court admitted 177 documentary exhibits and the trial record filled 2,683 transcript pages.

Consistent with the evidence presented by Honeywell, the jury found that Sundstrand willfully infringed all six asserted claims of the '194 and '893 patents under the doctrine of equivalents. App. 42a. The jury awarded $45 million in lost profit damages, plus reasonable royalty damages of $1,578,065, for a total damages award to Honeywell of $46,578,065. *Id.* As part of its ruling on post-trial motions (all of which were denied), the trial court noted that "[i]n total, Honeywell offered evidence that more than a dozen Sundstrand engineers and lawyers had notice of the Honeywell patents by the early 1990s." App. 90a.

C. The Federal Circuit Proceedings

Honeywell appealed two aspects of the district court's rulings relating to damages to the Federal Circuit. App. 11a. Sundstrand cross-appealed certain other aspects of the judgment, including the jury's finding of infringement and the district court's refusal to apply prosecution history estoppel. *Id.* Oral argument was held before a three-judge panel on August 7, 2002. App. 113a. Before any panel opinion issued, on February 5, 2004, the parties received notice that the Court of

Appeals had *sua sponte* ordered *en banc* review of the appeal. *Id.* The *en banc* court then rejected Honeywell's request that it be able to supply short supplemental briefing or argument, and the court proceeded to decide the case based on the parties' original submissions. App. 114a-115a.

On June 2, 2004, Judge Dyk delivered the majority opinion of the Court of Appeals, while Judge Newman filed a vigorous dissent. In the majority opinion, the court held that Honeywell's rewriting of claims 8 and 19 of the '893 patent (original claims 17 and 35) and claim 4 of the '194 patent (original claim 51) from dependent to independent form during prosecution, combined with the cancellation of the antecedent independent claims, constituted a narrowing amendment that resulted in the presumptive surrender of all equivalents to the IGV limitation. App. 1a-26a. Accordingly, the court remanded the case to the district court to consider whether Honeywell can rebut that presumption under the criteria laid out in *Festo Corp. v. Shoketsu Kinzoku Kogyu Kabushiki Co.* ("*Festo II*"), 344 F.3d 1359, 1368 (Fed. Cir. 2003) (*en banc)* (citing *Festo Corp. v. Shoketsu Kinzoku Kogyu Kabushiki Co.*, 535 U.S. 722, 741 (2002)). App. 25a.

Judge Newman began her dissent by announcing that "[t]oday the court changes the law in two new ways. The first way is directly contrary to statute. The second is simply another restriction on equivalency, far exceeding the holdings of the Supreme Court in *Festo* and *Warner-Jenkinson.*" App. 26a.

First, Judge Newman challenged the majority's holding that the rewriting of a dependent claim into independent form constitutes a narrowing amendment. As Judge Newman explained, this ruling was contrary to statute, since "35 U.S.C. § 112 ¶ 4 assured that claim scope is unrelated to whether the claim is in independent or dependent form." App. 28a. In addition, Judge Newman pointed out that "[t]his new rule will simply drive patent applicants away from dependent claims and away from the accepted protocol of presenting successively

narrowed dependent claims for examination. This new rule will simply raise the cost and increase the difficulty of patent examination." App. 26a.

Judge Newman also focused on the devastating effects the majority's holding would have on patent owners and inventors. "By adding presumptive estoppels to elements and limitations that were never a basis of rejection and never narrowed during examination, the court further erodes the ability of inventors to protect their inventions." App. 26a-27a. "The majority opinion changes the basic premise of presentation of claims of varying scope and divergent content, in holding that by dropping a broader claim, the claims subordinate to that claim became subject to presumptive estoppel, whether or not the subject matter at issue was included in the broader claim. That is far removed from the Court's holding in *Festo*." App. 32a.

Judge Newman further explained that the new rule announced by the *en banc* majority produced, in stark contrast to the *Festo* principle, "unbounded estoppel." App. 39a. That is, the *en banc* majority's decision created "estoppel against the entire universe of technology ... when an element was not originally claimed at all," as the IGV limitation was not in the cancelled, independent claim. App. 28a.

Finally, Judge Newman expressed the same concern that this Court did in reversing another divided *en banc* Federal Circuit decision in *Festo,* that the decision would disrupt the "settled" and "legitimate expectations of inventors in their property." *Festo*, 535 U.S. at 739. Judge Newman explained that the real "losers are those patentees who had no reason to foresee today's new rule, and future patentees who will have to cope with it." App. 40a.

REASONS FOR GRANTING THE WRIT

The Federal Circuit's judgment vacating the jury's finding of infringement on the basis of prosecution history estoppel should be reversed. The Federal Circuit's holding that "the rewriting of dependent claims into independent form coupled with the cancellation of the original independent claims creates a presumption of prosecution history estoppel" is directly contrary to both the patent statute, 35 U.S.C. § 112, and to this Court's previous holdings regarding the doctrine of equivalents. Moreover, the decision will wreak havoc on prosecution practice, as inventors will avoid dependent claims, which are designed to make patent prosecution more efficient.

Still further, patent applicants will be incentivized to fight with full resources any Patent Office rejection of any claim, even of collateral claims, as the result of the decision below is that every rejected and cancelled application claim can give rise to an estoppel in other claims that were themselves never rejected or amended. And because, under the decision below, a patent owner is presumptively denied *any* equivalents when a claim issues that contains a limitation not present in a cancelled claim, the resulting estoppel is unbounded. Patent owners are now left uncertain about the scope and value of their existing patents, since they were prosecuted and granted under a different set of rules. This Court's guidance and clarity is urgently needed.

I. The Federal Circuit Erred in Holding that the Rewriting of a Dependent Claim in Independent Form, Combined with the Cancellation of the Antecedent Claim, was a Narrowing Amendment that Gives Rise to the *Festo* Presumption of Prosecution History Estoppel.

The *en banc* majority began its analysis by likening this case to the *Warner-Jenkinson* and *Festo* cases, reasoning that those

cases make "clear that the addition of a new claim limitation can give rise to a presumption of prosecution history estoppel, just like an amendment that narrows a preexisting claim limitation." App. 16a. The majority then turned to the factual situation in this case, in which a dependent claim was rewritten in independent form, and relied on recent Federal Circuit panel decisions in *Deering Precision Instr. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314 (Fed. Cir. 2003) and *Ranbaxy Pharm., Inc. v. Apotex, Inc.*, 350 F.3d 1235 (Fed. Cir. 2003). App. 19a-21a. The court asserted that "when a claim is rewritten from dependent form into independent form and the original independent claim is cancelled, 'the correct focus is on whether [the] amendment surrendered subject matter.'" App. 21a-22a (citing *Ranbaxy*, 350 F.3d at 1240, and quoting *Deering*, 347 F.3d at 1325). The court thus concluded that "the surrendered subject matter is defined by the cancellation of independent claims that do not include a particular limitation and the rewriting into independent form of dependent claims that do include that limitation. Equivalents are presumptively not available with respect to that added limitation." App. 22a. As the Federal Circuit has now addressed the issue in several panel decisions, followed by the *en banc* decision in this case, the time is ripe for this Court to clarify the continued vitality of the doctrine of equivalents as well the appropriate limits on prosecution history estoppel.

A. The Federal Circuit's Decision Is Contrary to 35 U.S.C. § 112, ¶ 4.

Under this Court's decision in *Festo,* the threshold question in the prosecution history estoppel analysis is whether "an amendment is made to secure the patent and the amendment narrows the patent's scope." *Festo,* 535 U.S. at 736. If this question is answered in the negative, the inquiry ends and prosecution history estoppel does not apply. *Id.* Because the asserted independent claims here had never been narrowed, but

rather only were rewritten from dependent to independent form, there should have been no estoppel.

As Judge Newman pointed out in her dissent, the Federal Circuit's holding that a narrowing amendment occurred in this case is directly contrary to 35 U.S.C. § 112, ¶ 4. Section 112, paragraph 4 of the patent code states that "[a] claim in dependent form shall be construed to incorporate by reference all limitations of the claim to which it refers." 35 U.S.C. § 112. Accordingly, when Honeywell rewrote formerly dependent claims in independent form, it merely included *explicitly* in the claims limitations that were already *implicitly* present. This action did not change the scope of the claims in any way and cannot constitute a narrowing amendment. By statute, the newly independent claims claim exactly the same subject matter as the original dependent claims did, and they have not been narrowed at all. Thus, neither the inlet guide vane, nor any other limitation of the disputed claims, was added when they were rewritten from dependent form into independent form at the examiner's request.

The plain meaning of 35 U.S.C. § 112, ¶ 4 has been reaffirmed in numerous court decisions, which have previously held, without controversy, that simply rewriting a dependent claim in independent form is not a substantive modification that changes the scope of the claim. In *Insta-Foam Products, Inc. v. Universal Foam Systems, Inc.*, 906 F.2d 698, 703 (Fed. Cir. 1990), for example, the Federal Circuit declined to apply prosecution history estoppel to a claim that was rewritten in independent form after the patent examiner rejected the antecedent independent claim. Later, in *Bloom Eng'g Co., Inc. v. North Am. Mfg. Co., Inc.*, 129 F.3d 1247, 1250 (Fed. Cir. 1997), the Federal Circuit overturned a district court's holding that the rewriting of a dependent claim to independent form, with no other changes, was a substantive change. Relying on 35 U.S.C. § 112, ¶ 4, the court held that such an amendment "did not change the scope" of the claim and thus did not

constitute a substantive change to the claim. *Id.* Again in 2000, the Federal Circuit reached the same conclusion, this time citing *Warner-Jenkinson*, in *Vermeer Mfg. Co. v. The Charles Machine Works, Inc.*, 251 F.3d 168, __ (Fed. Cir. 2000) ("Despite CMW's arguments to the contrary, prosecution history estoppel does not bar this claim interpretation because issued Claim 1 was never rejected and was only rewritten in independent form and amended to correct an antecedent basis problem") (citing *Warner-Jenkinson*, 520 U.S. at 32-33); *see also Bose Corp. v. JBL, Inc.*, 274 F.3d 1354 (Fed. Cir. 2001) (rewriting of dependent claim in independent form as required by patent examiner did not constitute a narrowing amendment under *Festo*). The decision below flies in the face of the long understood, and statutorily mandated, precept that identical patent claims share the same scope, regardless of whether they are in dependent or independent form.

B. The Federal Circuit's Decision Is Contrary To This Court's Decision In *Festo* And Contrary To The Position Of The United States.

As noted above, this Court in *Festo* dictated that the predicate question for prosecution history estoppel was whether the scope of a patent claim had been narrowed by amendment. *Festo*, 535 U.S. at 736. By applying estoppel even where the scope of the claims at issue had never been narrowed, the decision below is contrary to *Festo*.

Still further, this Court in *Festo* specifically indicated that estoppel should not apply in the present situation. The *Festo* Court considered amendments that "concern the form of the application and not the subject matter of the invention," such as an amendment "to rewrite a dependent claim as an independent one." 535 U.S. at 736. In line with its consistent approach in *Festo*, the Court directed that the estoppel analysis should focus on "the impact the amendment has on the subject matter.... If a §112 amendment is truly cosmetic, then it would not narrow the patent's scope or raise an estoppel." *Id.* at 736-37. The

decision below unambiguously violates this rule: the rewriting of a dependent claim in independent form is the epitome of a cosmetic change that does not alter the claim's scope, and yet the Federal Circuit held that an estoppel applied.

The United States has also made clear its position that prosecution history estoppel should not apply in this situation. Specifically, the government's amicus brief to this Court in *Festo* cited approvingly to the district court's decision *in this proceeding* that had rejected the estoppel argument. To support its argument that patent applicants may amend their claims for reasons of patentability that do not result in a narrowing of the claims, the United States stated, by way of example, that "an applicant may amend by rewriting a dependent claim as an independent claim." 2001 WL 1025650, at *16 (citing *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 2001 WL 66348, at *6 (D. Del. Jan. 8, 2001) (Sleet, J.)). "Such amendments," the government affirmed, "do not give rise to prosecution history estoppel, which has as its core functions 'preserving the notice function of the claims and preventing patent holders from recapturing under the doctrine of equivalents subject matter that was surrendered before the Patent Office.'" *Id.* at *16-17. The Federal Circuit's decision below is squarely at odds with the United States' position.

C. The Federal Circuit's Decision Will Disrupt the Patent Prosecution Process.

The decision below, if allowed to stand, will have a number of dire consequences for patent prosecution. In the first place, as Judge Newman predicted in her dissent, "this new rule will simply drive patent applicants away from dependent claims and away from the accepted protocol of presenting successively narrowed dependent claims for examination." App. 26a (Newman, J., dissenting). Fearing that a broader, independent claim might be rejected, and that they would be required to rewrite a formerly dependent claim in independent form and face the same broad estoppel as Honeywell, cautious patent

applicants will be forced to rely on multiple independent claims with minor differences.

As Judge Newman observed, "[t]his new rule will simply raise the cost and increase the difficulty of patent examination." *Id.* A claim in dependent form readily isolates the differences between it and the broader claim on which it depends; by contrast, successive independent claims are much harder to evaluate. By greatly discouraging the use of dependent claims, the decision below will make the patent application process longer, more difficult, and more expensive. A study cited by both houses of Congress in their reports on 35 U.S.C. § 112 found that even in the case of simple patents, "the time saved in analyzing the difference between claims is approximately 2 to 1 in favor of the dependent form of claim." S. REP. NO. 89-301, at 2321 (1965). *See also* H.R. REP. NO. 89-113, at 16 (1965). Issued patents will also be wordier, more complicated, and more difficult to understand. According to Congressional debate, dependent claims help make interpretation and understanding of patent applications easier for judges and members of the bar, as well as for patent examiners. 111 CONG. REC. H5,267 (daily ed. Mar. 17, 1965) (statement of Rep. Poff). All of these are reasons why "[t]he use of dependent claims is encouraged by the patent examining authority as an aid to examination. Their value during examination," Judge Newman pointed out, "is reflected in the significantly lower fees charged for examination of dependent claims." App. 30a.

Dependent claims also serve to highlight for the public, including competitors trying to avoid infringement, the sometimes subtle distinctions between multiple claims in a patent. Faced with patents utilizing only independent claims instead, the public will be forced to wade through lengthy, multiple claims to discern the small differences, thus undermining the primary notice function of the patent laws and

significantly hindering the public's efforts to comply with owners' patents rights.

The decision below would drive patent practitioners away from the use of dependent claims. This is contrary to the intent of Congress and contrary to sound administration of patent prosecution practice.

II. The Federal Circuit Erred in Holding that a *Festo* Presumption of Estoppel Arises Whenever a Broader Claim is Rejected and Cancelled During Prosecution and a Separate Narrower Claim Issues, Even if the Narrower Claim was Never Itself Amended During Prosecution.

The language and logic of the Federal Circuit's holding below extends beyond the situation where a patent applicant rewrites a dependent claim into independent form and reaches *any* application where a claim is cancelled during prosecution. The *en banc* majority held that the cancellation of broader claims during the prosecution of Honeywell's patents meant that prosecution history estoppel applied to the narrower claims that survived and issued, even though those claims were themselves never rejected, amended or narrowed. App. 21a-22a. Thus, under the decision below, not only does estoppel apply when a dependent claim is rewritten in independent form and the antecedent independent claim is cancelled, but it also applies anytime that a broader claim is cancelled or rejected and a narrower claim issues. As Judge Newman explained in her dissent, "[t]he majority opinion changes the basic premise of presentation of claims of varying scope and divergent content, in holding that by dropping a broader claim, the claims subordinate to that claim became subject to presumptive estoppel, whether or not the subject matter at issue was included in the broader claim. That is far removed from the Court's holding in *Festo*." App. 32a.

A. The Federal Circuit's Holding Produces a New Form of Estoppel, Not Supported By Either *Festo* or *Warner-Jenkinson*.

The Federal Circuit completely ignored this Court's carefully dictated prosecution history estoppel analysis, and greatly expanded the potential scope of such estoppel, in the decision below. The Federal Circuit purported to rely on the rule announced in *Warner-Jenkinson* and confirmed in *Festo* that prosecution history estoppel applies when a new claim limitation is added during prosecution. App. 14a ("That the addition of a claim limitation constitutes a narrowing amendment is manifest in the language of both *Warner-Jenkinson* and *Festo*."). But in those two cases, the new claim limitations that gave rise to prosecution history estoppel were "disclosed for the first time in the amended applications." *Festo*, 535 U.S. at 729; *see also Warner-Jenkinson*, 520 U.S. at 22. The inlet guide vane limitation, on the other hand, to which the Federal Circuit applied prosecution history estoppel here, appeared identically in the original claims as in the issued claims; it was not an "added limitation" at all. App. 4a-6a, 8a-9a.

Thus, the *en banc* majority's opinion applies prosecution history estoppel not based on claims subject to narrowing amendment -- for there was no such amendment here -- but rather based on the *cancellation* of broader claims and their supposed "replacement" by other, narrower claims. *See* App. 22a ("the surrendered subject matter is defined by *the cancellation of independent claims that do not include a particular limitation* and the rewriting into independent form of dependent claims that do include that limitation.") (emphasis added). But the clear and oft-repeated guidance provided by this Court in *Warner-Jenkinson* and *Festo* establishes that prosecution history estoppel is available in two situations, when: "(1) a preexisting claim limitation is narrowed by amendment or (2) a new claim is added by amendment." App.

14a. Neither case stands for the proposition that estoppel may apply when a patent applicant simply cancels a claim, but never amends or adds a limitation to another preexisting claim. As Judge Newman stated, "[i]t is a new and unwarranted enlargement of *Festo's* law of presumptive surrender, to hold that this presumption arises automatically as to elements that were never rejected, never amended, and never at issue during prosecution, whenever a broader claim is cancelled." App. 34a (Newman, J., dissenting).

Accordingly, the decision below works a significant and unwarranted expansion of prosecution history estoppel and a concomitant drastic limitation on the doctrine of equivalents. The holding below will allow infringers to scan a patent's prosecution history for any cancelled claim not containing an issued limitation, and argue that prosecution history estoppel applies. This would turn the doctrine of equivalents, which this Court reconfirmed in *Warner-Jenkinson* and again in *Festo*, both times against unwarranted attempts by the Federal Circuit to cut it back, into a shell of its former self.

One result is that patent owners will have no choice but to contest with full resources the rejection of any claim during prosecution, so as to limit the chance that a cancelled claim will later affect the available equivalents of those claims that do issue. Even a patent applicant who files ten claims and is told that nine may issue exactly as written, but that one claim has been rejected, will be forced to allocate resources to contest that rejection for fear that the cancelled claim might one day limit her ability fully to enforce the nine claims that issued without amendment or controversy. These irrational incentives as a result of the decision below will lead to even more protracted and expensive patent prosecution.

B. The New Rule Announced By The Federal Circuit Produces Unbounded Estoppel.

This Court explained the proper measurement of prosecution history estoppel in *Festo*: "When the patentee responds to the rejection by narrowing his claims, this prosecution history estops him from later arguing that the subject matter covered by the original, broader claim was nothing more than an equivalent." *Festo*, 535 U.S. at 727. The Court went on to explain that "[a] patentee's decision to narrow his claims through amendment may be presumed to be a general disclaimer of the territory *between the original claim and the amended claim*." 535 U.S. at 740 (emphasis added). Thus, under *Festo,* prosecution history estoppel analysis involves comparing the original, broader claim with the amended, narrower claim to determine the scope of technology that the patentee has disclaimed.

In the decision below, by contrast, the Federal Circuit determined the scope of the estoppel by comparing the original dependent claims as rewritten in independent form to the cancelled original independent claims. *See* App. 16a-17a. Because the "narrowed" newly independent claims did include the IGV limitation while the cancelled claims did not contain any mention of the IGV limitation, the court held that "there is a presumptive surrender of all equivalents to the inlet guide vane limitation." App. 22a. The court's misapplication of prosecution history estoppel means that Honeywell faces a broader estoppel because the cancelled claims did not mention the IGV limitation at all than it would have had those original claims described some other form of the limitation. This illogical analysis, dictated solely by the scope of the *cancelled* claim rather than of the *issued* claim, if allowed to stand, would produce a radical increase in the scope of prosecution history estoppel.

As Judge Newman stated in her dissent, this new form of estoppel created by the majority is "an unbounded estoppel, for

there is no measure of the yielded territory." App. 39a. While the effect of prosecution history estoppel is ordinarily restricted to the territory between the original claim and the amended claim and patent holders are still free to claim as their invention any equivalents outside that territory, here the "original" claim compared to the amended claim for the *Festo* analysis (although, as explained above, not the proper original claim) did not contain the limitation at all, and so provides no outer boundary for the estoppel. App. 28a (Newman, J., dissenting) ("My colleagues ... presume estoppel against the entire universe of technology."). Honeywell is presumed by the Federal Circuit to have surrendered *all* equivalents to the IGV limitation and is prsemptively denied the protection of the doctrine of equivalents for all claims containing the IGV limitation.

This new form of estoppel is all the more shocking because it is based on a limitation that was not added, amended, or objected to during prosecution, but rather that issued exactly as it appeared in the original application. Unlike in *Warner-Jenkinson* and *Festo,* where the limitations that gave rise to prosecution history estoppel did not appear in the original patent applications but were added during prosecution to overcome prior art, it is undisputed that the inlet guide vane limitation appeared identically in original claims 51, 17 and 35 and issued claims 4, 8 and 19. *Cf. Warner-Jenkinson,* 520 U.S. at 22; *Festo,* 535 U.S. at 728. Thus it can not be said of Honeywell that it "originally claimed subject matter" relating to the inlet guide vane "but then narrowed the claim[s] in response to a rejection," triggering prosecution history estoppel (*Festo,* 535 U.S. at 733-34); rather, the scope of Honeywell's claims regarding the inlet guide vane remained the same throughout prosecution. The Federal Circuit's decision thus produces estoppel without limit.

C. The Federal Circuit's Decision Disrupts the Settled Expectations of Patent Owners and the Public.

This Court instructed in *Warner-Jenkinson*, and again in *Festo*, that "courts must be cautious before adopting changes that disrupt the settled expectations of the inventing community." *Festo*, 535 U.S. at 739 (*citing Warner-Jenkinson*, 520 U.S. at 28). The Court warned that "[f]undamental alterations in [the doctrine of equivalents and prosecution history estoppel] risk destroying the legitimate expectations of inventors in their property. ... 'To change so substantially the rules of the game now could well subvert the various balances the PTO sought to strike when issuing the numerous patents which have not yet expired and which would be affected by our decision.'" *Festo*, 535 U.S. at 739. Just as it did when initially deciding *Festo,* the Federal Circuit has ignored the Court's solicitude for settled expectations in deciding this case. This Court's admonition in *Festo* applies with equal force here:

> As *Warner-Jenkinson* recognized, patent prosecution occurs in light of our case law. Inventors who amended their claims under the previous regime had no reason to believe that they were conceding all equivalents. If they had known, they might have appealed the rejection instead. There is no justification for applying a new and more robust estoppel to those who relied on prior doctrine.

535 U.S. at 739. Patent owners who agreed to cancel rejected claims during prosecution prior to the decision below likewise had no reason to believe that they were conceding all equivalents to all limitations not also contained in another claim. If they had, they too would surely have appealed the rejection. The Federal Circuit has put forward no rationale or justification for suddenly imposing this "new and more robust estoppel" on these millions of patent owners who prosecuted their patents under the prior regime.

And, perhaps most disturbingly, because the resulting estoppel is unbounded, there is no way for a patent owner to predict how wide the preclusive effects will extend. Rather than knowing at the time of issuance the extent and scope of their patent coverage, as Congress and this Court intended, patent holders who have cancelled or amended any claim during prosecution – that is, *most* patent holders -- are left wondering to which claims estoppel might apply and how far it will extend.

The balance that this Court has attempted to strike between the competing rules of the doctrine of equivalents and prosecution history estoppel is a delicate one. The Court explained the relationship between the two in *Festo*:

> Prosecution history estoppel ensures that the doctrine of equivalents remains tied to its underlying purpose. Where the original application once embraced the purported equivalent but the patentee narrowed his claims to obtain the patent or to protect its validity, the patentee cannot assert that he lacked the words to describe the subject matter in question. The doctrine of equivalents is premised on language's inability to capture the essence of invention, but a prior application describing the precise element at issue undercuts that premise.

535 U.S. at 734. The Court's articulation of the purpose behind prosecution history estoppel powerfully illustrates why it does not apply to this case. Honeywell did not "describ[e] the precise element at issue" in "a prior application" and then narrow its claims to obtain the patent. The claims that were cancelled contained no mention at all of an inlet guide vane; the only description of an inlet guide vane that was ever offered to the PTO is the one that ultimately issued. The doctrine of equivalents and the related rule of prosecution history estoppel implicate the fundamental tension between the public's need for

clarity in terms of patent coverage and the patent holder's need for adequate protection from infringement. In *Festo* the Court declined to extend prosecution history estoppel in such a way as to "risk destroying the legitimate expectations of inventors in their property," 535 U.S. at 739, and it should likewise decline to do so here.

Furthermore, allowing Honeywell to utilize the doctrine of equivalents to establish Sundstrand's infringement of its patent claims, including the inlet guide vane limitation, is consistent with the original purpose behind the development of the doctrine. The doctrine of equivalents is primarily concerned with copyists "who make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, [absent the doctrine of equivalents] would be enough to take the copied matter outside the claim, and hence outside the reach of the law." *Graver Tank,* 339 U.S. at 607. This Court reiterated the value of the doctrine of equivalents to protect legitimate inventors against copyists over fifty years later in *Festo*: "[Without the doctrine of equivalents] unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying." *Festo,* 535 U.S. at 731. Both the jury and the district court found that Hamilton Sundstrand had engaged in just such copying after a ten-day trial in this matter. The jury found willful infringement of all six asserted claims, and the district court in its post-trial rulings found that "more than a dozen Sundstrand engineers and lawyers had notice of the Honeywell patents by the early 1990s" -- just the time when Sundstrand was developing its infringing APU. App. 90a. Despite this clear evidence of willful infringement of two valid patents, the Federal Circuit has held that the doctrine of equivalents is not available to Honeywell for a claim limitation that was never amended, added or rejected, but instead issued exactly as written in the original patent application. This irrational and unjust result should be overturned and the

doctrine of equivalents should be restored to its originally intended strength.

CONCLUSION

For the foregoing reasons, the petition for a Writ of Certiorari should be granted.

Respectfully submitted,

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APPENDIX

TABLE OF CONTENTS

Document	Page
U.S. Court of Appeals for the Federal Circuit, Opinion (June 2, 2004)	1a
U.S. District Court for the District of Delaware, Memorandum Opinion (Sept. 27, 2001)	41a
U.S. District Court for the District of Delaware, Memorandum Opinion (Jan. 8, 2001)	99a
U.S. Court of Appeals for the Federal Circuit, Order (Feb. 5, 2004)	113a
U.S. Court of Appeals for the Federal Circuit, Order (Feb. 26, 2004)	114a

UNITED STATES COURT OF APPEALS
FEDERAL CIRCUIT

Nos. 02-1005, 02-1082
June 2, 2004

HONEYWELL INTERNATIONAL INC., and Honeywell Intellectual Properties, Inc.,

Plaintiffs-Appellants,

v.

HAMILTON SUNDSTRAND CORPORATION,

Defendant-Cross Appellant.

Robert G. Krupka, Kirkland & Ellis, of Los Angeles, CA, for plaintiffs-appellants. With him on the brief were Jonathan F. Putnam, Todd S. Schulman, Lee Ann Stevenson and Vickie Reznik, of New York, NY. Of counsel on the brief was John Donofrio, General Counsel, Honeywell Aerospace, of Phoenix, AZ. Of counsel were Christian Douglas Wright and Josy W. Ingersoll, Young Conaway Stargatt & Taylor, LLP, of Wilmington, DE.

Richard F. Ziegler, Cleary, Gottlieb, Steen & Hamilton, of New York, NY, for defendant-cross appellant. With him on the brief were Lawrence B. Friedman, Joshua H. Rawson, David H. Herrington, Justin S. Anand and Christopher P. Moore.

Before MAYER, Chief Judge, NEWMAN, MICHEL, LOURIE, CLEVENGER, RADER, SCHALL, BRYSON, GAJARSA, LINN, DYK, and PROST, Circuit Judges.

Opinion for the court filed by Circuit Judge DYK, in which Chief Judge MAYER and Circuit Judges MICHEL, LOURIE, CLEVENGER, RADER, SCHALL, BRYSON, GAJARSA, LINN, and PROST join. Opinion dissenting in part filed by Circuit Judge NEWMAN.

DYK, Circuit Judge.

Honeywell International Inc. and Honeywell Intellectual Properties, Inc. (collectively "Honeywell"), the assignees of the patents in suit, brought suit against Hamilton Sundstrand Corporation ("Sundstrand") for infringement of claims 8, 10, 11, 19 and 23 of United States Patent No. 4,380,893 (the "'893 patent") and claim 4 of Patent No. 4,428,194 (the "'194 patent"). All of the asserted independent claims were originally dependent claims that were rewritten into their present independent form during prosecution. The broader original independent claims were cancelled.

The jury found that the patents in suit were valid and, although not literally infringed, infringed under the doctrine of equivalents. The district court entered judgment against Sundstrand. *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 166 F.Supp.2d 1008 (D.Del. 2001).

Following our recent decisions in *Deering Precision Instruments, L.L.C. v. Vector Distribution Systems, Inc.*, 347 F.3d 1314 (Fed.Cir.2003), and *Ranbaxy Pharmaceuticals, Inc. v. Apotex, Inc.*, 350 F.3d 1235 (Fed.Cir.2003), we hold that the rewriting of dependent claims into independent form coupled with the cancellation of the original independent claims creates a presumption of prosecution history estoppel. Accordingly we vacate the judgment of infringement and remand for determination of whether Honeywell can rebut the presumption of surrender under *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 122 S.Ct. 1831,

152 L.Ed.2d 944 (2002), *remanded to* 344 F.3d 1359 (Fed.Cir.2003) (*en banc*). We affirm the district court's judgment rejecting Sundstrand's counterclaims of invalidity.

BACKGROUND I

The Honeywell patents are directed to an aircraft auxiliary power unit ("APU"), a small gas turbine engine usually located in the tail section of an airplane. The APU generates electricity and incorporates a load compressor to provide compressed air needed both to start the aircraft's main engines and to control the environment of the aircraft's cabin during flight. During flight, the amount of compressed air required for these purposes fluctuates substantially. A valve is used to control the amount of air exiting the compressor through the main air duct, which supplies compressed air to the aircraft's systems. Rapid changes in the demand for compressed air needed can produce "surge," a flow instability that occurs when pressure builds up in the main air duct. In a surge condition, the air attempting to exit the compressor's main air duct is unable to do so. Instead the airflow reverses direction, surging back into the compressor and potentially damaging the APU. The APU must therefore be designed in such a way as to control surge. Prior systems controlled surge by drawing in more air than was needed and venting (bleeding) the excess through a surge bleed valve in order to reduce pressure in the main air duct. Such systems maintained sufficient output airflow, effectively controlling surge, but were inefficient in operation and wasteful of energy.

The Honeywell APU is designed to be more efficient by avoiding excess air bleeding in its control of surge. To do this it is necessary to determine when and how far to open the surge bleed valve in order to maintain a level of flow sufficient to avoid surge. To reach this end, Honeywell's invention establishes a "set point" that represents the

minimum flow at which surge can safely be avoided. In the claimed invention, "[a]mbient air...is drawn through a set of adjustable inlet guide vanes." '893 patent, col. 3, ll.64-65. The value of the set point is selected "as a function of the position of said inlet guide vanes." *Id.*, col. 12, ll.11-12; *see also* '194 patent, col. 12, ll.15-16. The set point is compared to a "flow-related parameter" that represents airflow out of the compressor as determined by a sensor. '893 patent, col. 2, ll.47-48; '194 patent, col. 2, ll.-48-49. Thus a comparison is made between the actual flow conditions (represented by the flow-related parameter) and the desired flow conditions (represented by the set point). If the system determines that airflow out of the main air duct is too low, the surge bleed valve will be opened to prevent the build up of excess pressure leading to surge.

II

The '893 and '194 patents resulted from a common application filed February 19, 1981. The specification of both patents is identical. Only claims 8, 10, 11, 19 and 23 of the '893 patent and claim 4 of the '194 patent are at issue in this case. Each of these claims requires the APU to include inlet guide vanes and requires the operation of the surge bleed valve to be a function of inlet guide vane position. Claim 8 is representative of the apparatus claimed in the '893 patent:

> 8. A gas turbine engine accessory power unit having a fluctuating compressed air supply demand, said accessory power unit comprising:
>
> (a) a compressor *having adjustable inlet guide vanes*;
>
> (b) duct means for receiving compressed air discharged from said compressor and supplying the received air to the pneumatically-powered apparatus;
>
> (c) surge bleed means operable to exhaust from said duct means a selectively variable quantity of air to assure at

least a predetermined minimum flow rate through said duct means and thereby prevent surge of said compressor;

(d) sensing means for sensing the value of a predetermined, flow-related parameter within said duct means and generating an output signal indicative of said value, said value of said flow-related parameter being substantially independent of the temperature of the compressed air;

(e) comparator means for receiving said sensing means output signal and generating an error signal representing the difference between the sensed value of said parameter and a desired value thereof, said comparator means having an adjustable control set point representing said desired value of said parameter;

(f) means for transmitting to said comparator means a reset signal for *varying said set point as a function of the position of said inlet guide vanes* in accordance with a predetermined reset schedule; and

(g) control means for receiving said error signal and transmitting to said surge bleed means a control signal to operate said surge bleed means, the magnitude of said control signal having, relative to the magnitude of said error signal, a proportional component and an integral component, whereby said minimum flow rate though said duct means is essentially constant regardless of the compressed air supply demand of the pneumatically-powered apparatus.

'893 patent, col. 11, 1.52--col. 12, 1.23 (emphases added). Claim 4 of the '194 patent claims a method of controlling surge in an APU:

4. A method of utilizing a compressor of a gas turbine engine to power pneumatically-operated apparatus having a variable inlet air flow demand, the compressor *having adjustable inlet guide vanes*, said method comprising the steps of:

(a) interconnecting a supply duct between the compressor and the pneumatically-operated apparatus;

(b) flowing discharge air from the compressor through said supply duct to the pneumatically-operated apparatus;
(c) maintaining an essentially constant minimum supply duct flow rate, despite fluctuations in the flow rate of air received by the pneumatically-operated apparatus, by exhausting air from said supply duct in response to variations therein of the value of a predetermined, flow-related parameter, the flow rate of air exhausted from said supply duct being related to the magnitude of said parameter value variations in both a proportional and time-integral manner, said maintaining step including the steps of providing an outlet passage from said supply duct, positioning in said outlet passage a surge bleed valve operable to selectively vary the flow of air outwardly though said outlet passage, generating a proportional control signal in response to said variations in said flow-related parameter, and simultaneously utilizing said integral and proportional control signals to operate said surge bleed valve;
(d) *adjusting the relationship between the magnitudes of said integral and proportional control signals and the magnitudes of said parameter variations as a function of the position of the inlet guide vanes.*
'194 patent, col. 10, 1.64--col. 12, 1.16 (emphases added).

III

Sundstrand manufacturers an APU device, the APS 3200, which also uses an active surge control system that compares a flow-related parameter to a set point and adjusts the surge bleed valve in response. Sundstrand's device establishes a set point that is dependent upon ambient air temperature, rather than a measurement of inlet guide vane position. This set point is compared to a flow-related parameter called DELPQP. Because of characteristics

unique to DELPQP,[1] the APS 3200 blocks control signals used to operate the surge bleed valve during extreme high flow conditions. This prevents unnecessary bleeding of air during such conditions. The determination of whether to block these control signals is based in part on the position of the APS 3200's inlet guide vanes.

Only infringement under the doctrine of equivalents is at issue in this appeal. Honeywell concedes that the inlet guide vane limitation[2] is not literally met by the accused device. However, there is substantial disagreement as to the function of the inlet guide vanes required by the claims and whether inlet guide vane position performs an equivalent function in the accused device. Sundstrand contends that the claimed function is to use inlet guide vane position to establish the set point. It urges that the APS 3200 uses inlet guide vane position for a very different function, *i.e.*, to determine when to block control signals used to operate the surge bleed valve. Honeywell disagrees, arguing that the function of the inlet guide vane limitation "is to incorporate

---

1 The DELPQP value used in the accused device has an unusual characteristic. In most airflow conditions the value of DELPQP is directly proportional to the amount of airflow. At high levels of flow, however, DELPQP becomes inversely proportional to the amount of flow, *i.e.*, above a certain level of flow DELPQP decreases instead of increases as flow increases. Reliance upon DELPQP under these conditions might incorrectly characterize a safe high flow situation as an unsafe low flow situation, resulting in the surge bleed valve being opened to increase flow unnecessarily, causing excess APU fuel consumption.

2 "Inlet guide vane limitation" here refers to both the claimed structure of the inlet guide vanes and their claimed function in the surge control system (*e.g.*, "varying said set point as a function of the position of said inlet guide vanes," '893 patent, claim 8, and "adjusting the relationship between the magnitudes of said . . . control signals and . . . said parameter variations as a function of the position of the inlet guide vanes," '194 patent, claim 4).

the position of the [inlet guide vanes] into the surge control system." (Reply Br. For Pls.-Appellants at 23 (claim 4); *see also id.* at 25 (claim 8).) It argues that this function is met because the APS 3200 uses inlet guide vane position, in addition to temperature, to efficiently control surge. Unfortunately, by agreement of the parties, the district court did not construe the claim language defining the function of inlet guide vane position in the '893 patent, and the court's construction of step (d) of claim 4 of the '194 patent and its jury instruction were somewhat cryptic.[3]

IV

Honeywell filed this suit on May 17, 1999, alleging that the APS 3200 infringed both the '893 and '194 patents. Sundstrand denied that its device infringed the patents.

Sundstrand further pointed out that all of the asserted claims were originally dependent on other claims in Honeywell's patent applications (application claims 16 and 32 of the '893 patent and application claims 48 and 4 of the '194 patent) that did not contain the inlet guide vane limitation. These claims were rejected as obvious in light of the prior art during the prosecution of Honeywell's patents. Application claims 17 and 35 of the '893 patent and application claim 51 of the '194 patent, which further included the inlet guide vane limitation,[4] were not allowed

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[3] The district court construed step (d) to mean "the relationship between the magnitudes of the control signals and the magnitudes of the parameter variations, and that relationship is adjusted as a function of the position of the inlet guide vanes." *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, No. 99-309 GMS, slip op. at 2, 2001 WL 34030812 (D.Del. Feb. 16, 2001).

[4] Claims 17 and 35 of the '893 patent application and claim 51 of the '194 patent application provided:

only because they were dependent on the rejected independent application claims.[5] The examiner indicated that application claims 17, 35 and 51 would be allowable if rewritten into independent form. In response, the rejected independent claims were cancelled and application claims 17, 35 and 51 were amended to expressly incorporate the limitations of the rejected independent claims. The amended application claims issued respectively as claims 8 and 19 of the '893 patent and claim 4 of the '194 patent, which are the only independent claims found to be infringed by the jury

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17. The accessory power unit of Claim 16 wherein said compressor has adjustable inlet guide vanes, the value of said flow-related parameter is substantially independent of the temperature of the compressed air, said comparator means have an adjustable control set point representing said desired value of said parameter, and said accessory power unit further comprises means for transmitting to said comparator a reset signal for varying said set point as a function of the position of said inlet guide vanes in accordance with a predetermined reset schedule.

35. The control system of Claim 32 wherein the compressor has adjustable inlet guide vanes, and said control system further comprises a guide vane position sensor and a function generator coupled in series between the inlet guide vanes and said input portion of said comparator.

51. The method of Claim 49 wherein the compressor has adjustable inlet guide vanes, and said method further comprises the step of adjusting the relationship between the magnitudes of said integral and proportional control signals and the magnitudes of said parameter variations as a function of the position of the inlet guide vanes. (App. at 18640, 18645, 1873.)

[5] Claim 35 was also rejected as indefinite under 35 U.S.C. § 112. This rejection was overcome by amendment to other claim limitations. Sundstrand does not argue that these other limitations are a basis for overruling the district court's judgment.

and at issue in this dispute. Claims 10, 11 and 23 of the '893 patent, also found to be infringed, are dependent on claims 8 and 19 and thus include the inlet guide vane limitation.

Before the district court, Sundstrand urged that claims 8 and 19 of the '893 patent and claim 4 of the '194 patent were narrowed by amendment and that prosecution history estoppel barred all equivalents for the inlet guide vane limitation under *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558 (Fed. Cir. 2000) (*en banc*). In the alternative, Sundstrand argued that there was no infringement under the doctrine of equivalents because the APS 3200 used inlet guide vane position for a "completely different function" (*i.e.*, to determine when to block the control signal operating the surge bleed valve, as opposed to using inlet guide vane position to determine when and how much to open that valve). Affirmative defenses and counterclaims urging that the '893 and '194 patents were invalid as anticipated, obvious in view of the prior art, and barred by the on-sale bar of 35 U.S.C. § 102(b) were also asserted. Finally, Sundstrand argued that damages, if any, were limited to those incurred after February 3, 1999, the date it received actual notice of Honeywell's infringement allegations, because the patentee had failed to mark its products in accordance with 35 U.S.C. § 287. Sundstrand moved for summary judgment on each of these arguments.

On January 8, 2001 the district court, while acknowledging that Sundstrand's argument had "superficial appeal," rejected its motion for summary judgment on prosecution history estoppel. *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, No. 99-309 GMS, slip op. at 10, 2001 WL 66348 (D.Del. Jan. 8, 2001). The court held that because the claims were merely rewritten into independent form, the "elements at issue were not amended" and "Honeywell did not give up an embodiment of the invention with the inlet guide vane" limitation. *Id.* at 10-11.

Sundstrand's other summary judgment motions for invalidity and infringement were denied because genuine issues of material fact remained. However, the district court granted Sundstrand's summary judgment motion on the marking issue and limited damages to those incurred after February 3, 1999. *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, No. 99-309 GMS, 2001 WL 66345 (D.Del. Jan. 4, 2001). Subsequently, the district court clarified its decision to limit damages, holding that Honeywell could not recover damages on sales pursuant to contracts made prior to February 3, 1999, even if delivery occurred after that date. *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, No. 99-309 GMS (D.Del. Feb. 8, 2001).

In February 2001 the case was tried before a jury. The jury found that all of the asserted claims of the '893 and '194 patents were not invalid. It rejected Honeywell's contention that Sundstrand had literally infringed the '194 patent, but found claims 8, 10, 11, 19 and 23 of the '893 patent and claim 4 of the '194 patent infringed under the doctrine of equivalents. The jury further found willfulness, and awarded $1,578,065 in reasonable royalty compensation and $45,000,000 in price erosion damages. Judgment in accordance with the jury verdict was entered on February 20, 2001. On September 27, 2001, the court denied Sundstrand's motions for judgment as a matter of law ("JMOL") and a new trial. The court also denied Honeywell's motion for JMOL on literal infringement and its motion for enhanced damages, attorneys' fees and costs, including expert witness costs.

Honeywell timely appealed the district court's decisions limiting its actual damages. Honeywell did not appeal the judgment of no literal infringement. Sundstrand cross-appealed, challenging the district court's determinations of infringement under the doctrine of equivalents and the decision rejecting its claims of invalidity.

We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).[6] This case was originally heard by a panel of this court on August 7, 2002. The court sua sponte ordered *en banc* review on February 5, 2004.

DISCUSSION

We review the district court's denial of a motion for JMOL without deference, applying the same standard employed by the district court. *Ericsson, Inc. v. Harris Corp.*, 352 F.3d 1369 1373 (Fed. Cir. 2003). That standard requires us to "determine whether viewing the evidence in the light most favorable to the non-moving party, and giving the non-movant the benefit of all reasonable inferences, there is sufficient evidence of record to support a jury verdict in favor of the non-movant." *Id.* (internal quotation marks omitted). "We review the denial of a motion for a new trial for an abuse of discretion." *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1318 (Fed. Cir. 2003). Whether a patentee is presumptively estopped from asserting equivalents for a amended claim element is a question of law that we review without deference. *Ranbaxy*, 350 F.3d at 1240.

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6 Although the district court's judgment did not expressly dispose of Sundstrand's counter-claims, the special verdict referred to in the court's final judgment specifically rejects each of Sundstrand's invalidity arguments. Since the district court's intent was clear, we interpret the judgment to be a final rejection of the counterclaims for invalidity. *See Pandrol USA, LP v. Airboss Ry. Prods., Inc.*, 320 F.3d 1354, 1362-63 (Fed. Cir. 2003); *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 1378 (Fed. Cir. 1999).

I. Prosecution History Estoppel

A

At the outset, this case requires us to determine first whether a narrowing amendment to a patent claim that adds an additional claim limitation creates a presumptive surrender of equivalents under the Supreme Courts decisions in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 117 S. Ct. 1040, 137 L.Ed.2d 146 (1997), and *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 122 S. Ct. 1831, 152 L.Ed.2d 944 (2002) ("*Festo*"), and under our recent decision in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359 (Fed. Cir. 2003) (*en banc*) ("*Festo II*"), following the Supreme Court s remand. We hold that it does.

"The doctrine of equivalents allows the patentee to claim those insubstantial alterations that were not captured in drafting the original patent claim but which could be created through trivial changes." *Festo*, 535 U.S. at 733, 122 S. Ct. 1831. An element in the accused device is equivalent to a claim limitation if the only differences between the two are insubstantial. *Eagle Compromises, Inc. v. Arrow Communication Labs., Inc.*, 305 F.3d 1303, 1315 (Fed. Cir. 2002) (citing *Warner-Jenkinson*, 520 U.S. at 40, 117 S. Ct. 1040). However, prosecution history estoppel may bar the patentee from asserting equivalents if the scope of the claims has been narrowed by amendment during prosecution. *Festo*, 535 U.S. at 733-34, 122 S. Ct. 1831. "Estoppel arises when an amendment is made to secure the patent and the amendment narrows the patents scope." *Id.* at 736, 122 S. Ct. 1831. The basic theory is that:

> [w]hen . . . the patentee originally claimed the subject matter alleged to infringe but then narrowed the claim in response to a rejection, he may not argue that the surrendered territory comprised unforeseen subject matter that

> should be deemed equivalent to the literal claims of the issued patent . . . [H]is decision to . . . submit an amended claim is taken as a concession that the invention as patented does not reach as far as the original claim.

Id. at 733-34, 122 S. Ct. 1831. However, as we recently explained *en banc* following the Supreme Courts remand in *Festo*, the presumption of surrender may be rebutted if the patentee can demonstrate that: (1) "the alleged equivalent would have been unforeseeable at the time . . . the narrowing amendment" was made; (2) "the rationale underlying the narrowing amendment bore no more than a tangential relation to the equivalent" at issue; or (3) "there was 'some other reason' suggesting that the patentee could not reasonably have been expected to have described the alleged equivalent." *Festo II*, 344 F.3d at 1368 (quoting *Festo*, 535 U.S. at 741, 122 S. Ct. 1831).

The Supreme Court addressed the effect of a narrowing amendment on the scope of equivalents in *Warner-Jenkinson* and *Festo*. These decisions make clear that a narrowing amendment may occur when either (1) a preexisting claim limitation is narrowed by amendment or (2) a new claim limitation is added by amendment. These decisions make no distinction between the narrowing of a preexisting limitation and the addition of a new limitation. Either amendment will give rise to a presumptive estoppel if made for a reason related to patentability.

That the addition of a claim limitation constitutes a narrowing amendment is manifest in the language of both *Warner-Jenkinson* and *Festo*. In both of these decisions the Supreme Court indicated that amending to "introduce a new element," *Warner-Jenkinson*, 520 U.S. at 33,117 S. Ct. 1040, or "add[] a new limitation," *Festo*, 535 U.S. at 728, 122 S. Ct. 1831, may give rise to a presumption of surrender. This language is not dictum. Both *Warner-Jenkinson* and *Festo*

directly held that amendments that added new limitations could give rise to an estoppel. For example, in *Warner-Jenkinson*, the patentee claimed an "ultra filtration" process for purifying dye. 520 U.S. at 22, 117 S. Ct. 1040. Originally the claims at issue required "ultra filtration through a membrane having nominal pore diameter of 5-15 Angstroms under a hydrostatic pressure of approximately 200 to 400 p.s.i.g. . . . to thereby cause separation of said impurities from said dye." *Id.* During prosecution, the inventors added a new limitation, which narrowed the scope of the claimed invention from processes conducted at any pH to those occurring "at a pH from approximately 6.0 to 9.0." *Id.* The Supreme Court expressly treated this amendment as "introduce[ing] a new element" to the claims at issue, further holding that "application of the doctrine of equivalents as to that [added] element" would be barred unless the patentee could show a reason for the amendment sufficient to avoid estoppel. *Id.* at 33-34, 117 S. Ct. 1040.

Festo too involved amendments that added new limitations to the claims. There two patents were at issue, the Stoll and Carroll patents. During prosecution an additional limitation was added to the Stoll patent requiring that the claimed invention include "a cylindrical sleeve made of a magnetizable material." *Festo II*, 344 F.3d at 1371 (emphasis omitted). An additional limitation requiring "a pair of resilient sealing rings" was also added during reexamination to claim 1 of the Carroll patent, which previously "made no reference to sealing rings." *Id.* at 1372. The Supreme Court referred to both of these amendments as "add[ing] a new limitation," 535 U.S. at 728, 122 S. Ct. 1831, and held that they gave rise to a presumptive surrender of equivalents. *Id.* at 741, 122 S. Ct. 1831; *see also, e.g., I.T.S. Rubber Co. v. Essex Rubber Co.*, 272 U.S. 429, 443, 47 S. Ct. 136, 71 L.Ed. 335 (1926); *Shepard v. Carrigan*, 116 U.S. 593, 597, 6 S. Ct. 493, 29 L.Ed. 723 (1886) ("Where an applicant for a patent . . . is compelled by the rejection of his

application . . . to narrow his claim *by the introduction of a new element*, he cannot after the issue of the patent broaden his claim by dropping the element which he was compelled to include in order to secure his patent." (emphasis added)).

It is therefore clear that the addition of a new claim limitation can give rise to a presumption of prosecution history estoppel, just like an amendment that narrows a preexisting claim limitation. In either case, the narrowing amendment, if made for a reason related to patentability, will give rise to a presumption of surrender. If only narrowing amendments to preexisting claim limitations could give rise to the presumption, the purpose of preventing patentees from recapturing subject matter conceded during prosecution would be undermined. Astute practitioners could, through clever claim drafting, elect to treat most, if not all, amendments as merely adding new claim limitations rather than narrowing preexisting ones. For these reasons, we hold that an amendment adding a new claim limitation constitutes a narrowing amendment that may give rise to an estoppel.

B

We must next address whether rewriting a dependent claim into independent form, coupled with the cancellation of the original independent claim, constitutes a narrowing amendment when the dependent claim includes an additional claim limitation not found in the cancelled independent claim or circumscribes a limitation found in the cancelled independent claim.

In this case there is no question that the original independent claims (application claims 16 and 32 of '893 patent and application claims 48 and 49 of the '194 patent) were rejected for reasons related to patentability. All of the original independent claims were rejected as obvious in view of the prior art. The original independent claim upon which

application claim 35 depended was also rejected as indefinite under 35 U.S.C. § 112, paragraph two. These rejected independent claims were cancelled and the dependent claims (application claims 17 and 35 of the '893 patent and claim 51 of the '194 patent) were rewritten into independent form in order to secure their allowance.

A presumption of surrender therefore arises if rewriting the dependent claims into independent form, along with canceling the original independent claims, constitutes a narrowing amendment. Honeywell argues that prosecution history estoppel cannot occur where a dependent claim is merely rewritten into independent claims. Honeywell contends that, although it surrendered its broader independent claim, there is no presumption of surrender because the scope of the rewritten claims themselves has not been narrowed. We disagree.

In *Festo*, the Supreme Court held that the proper focus is whether the amendment narrows the overall scope of the claimed subject matter. *See* 535 U.S. at 736-37, 122 S. Ct. 1831. There the United States in its *amicus curiae* brief cited the district court's opinion in this very case. Honeywell itself notes that the government in *Festo* urged the Court to adopt the position that rewriting a dependent claim into independent form cannot give rise to a presumption of surrender.[7] (Reply Br. for Pls.-Appellants at 16-17.) The

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[7] The government argued that:

> Patent applicants may amend their patent claims for reasons of patentability--such as to clarify an ambiguous term--that do not result in narrowing the claims and surrendering subject matter. Rather, the amendments may state the same--or broader--patent claims in more precise terms. *For example, an applicant may amend by rewriting a dependent claim as an independent claim. See Honeywell Int'l Inc. v.*

Supreme Court, while approvingly citing the government's positions with respect to other issues, *see, e.g., Festo*, 535 U.S. at 740, 122 S. Ct. 1831, rejected the position of the government in this respect, stating that rewriting a dependent claim in independent form creates a presumptive surrender if the amendment is "made to secure the patent," *id.* at 736. The Court held that:

> *The PTO might require the applicant* to clarify an ambiguous term, to improve the translation of a foreign word, or *to rewrite a dependent claim as an independent one.* In these cases, petitioner argues, the applicant has no intention of surrendering subject matter and should not be estopped from challenging equivalent devices. While this may be true in some cases, petitioner's argument conflates the patentee's reason for making the amendment with the impact the amendment has on the subject matter.
>
> Estoppel arises when an amendment is made to secure the patent and the amendment narrows the patent's scope. If a § 112 amendment is truly cosmetic, then it would not narrow the patent's scope or raise an

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Hamilton Sundstrand Corp., No. Civ. A 99-309 GMS, 2001 WL 66348, at *6 (D.Del. Jan. 8, 2001) . . . . *Such amendments do not give rise to prosecution history estoppel*, which has as its core functions preserving the notice function of the claims and preventing patent holders from recapturing under the doctrine of equivalents subject matter that was surrendered before the Patent Office.

Br. for the United States as Amicus Curiae at 16-17, *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 122 S.Ct. 1831, 152 L.Ed.2d 944 (2002) (No. 00-1543) (emphases added and internal quotation marks omitted).

> estoppel. On the other hand, if a § 112 amendment is necessary and narrows the patent's scope--even if only for the purpose of better description--estoppel may apply. A patentee who narrows a claim as a condition for obtaining a patent disavows his claim to the broader subject matter, whether the amendment was made to avoid the prior art or to comply with § 112. *We must regard the patentee as having conceded an inability to claim the broader subject matter or at least as having abandoned his right to appeal a rejection. In either case estoppel may apply.*

Id. at 736-37, 122 S. Ct. 1831 (emphases added). Thus, the fact that the scope of the rewritten claim has remained unchanged will not preclude the application of prosecution history estoppel if, by canceling the original independent claim and rewriting the dependent claims into independent form, the scope of subject matter claimed in the independent claim has been narrowed to secure the patent.[8]

This is the rule we have consistently applied in our post-*Festo* decisions. First, in *Deering* we held that

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[8] *See also Keith v. Charles E. Hires Co*, 116 F.2d 46 (2d Cir. 1940). In *Keith*, Judge Learned Hand, writing for the court, stated:

> We can see no difference between that situation [where the claim was amended to secure allowance] and one where as here the applicant files a limited and a broader claim at the same time and then cancels the broader one when it has been rejected. The theory of the "estoppel," as it is called is that, by assenting to the cancellation of the claim and by amendment it, the applicant has abandoned it as it stood. Certainly it cannot be necessary to this conclusion that he shall amend the cancelled claim, when he has already filed a claim which contains the necessary differentia.

Id. at 48.

canceling a broader independent claim and replacing it with a dependent claim rewritten into independent form was a "clear surrender of the broader subject matter" that presumptively barred application of the doctrine of equivalents. 347 F.3d at 1325. There the patentee's original claim 1 defined a portable scale including a sliding weight that moved along a beam to indicate the weight of a load placed on the opposite end. *Id.* at 1317. Dependent claim 3 added a "Zero Position Limitation" requiring that the zero position of the sliding weight be "in an imaginary plane containing the fulcrum of the beam." *Id.* at 1318-19 (emphasis omitted). Claim 1 was rejected as obvious during prosecution. *Id.* at 1319. The patentees cancelled claim 1 and rewrote claim 3 (new application claim 11) in independent form. *Id.* Following the rule announced by the Supreme Court in *Festo*, we rejected the argument that the amendment was merely "cosmetic." *Id.* at 1326. We held that this was a narrowing amendment because "the patentees clearly disclaimed the territory between the original claim 1 and new claim 1 as issued [application claim 11]." *Id.* at 1325. Consequently, the "addition of independent claim 11, coupled with the clear surrender of the broader subject matter of the deleted original independent claim presumptively" barred the patentee from arguing equivalents related to the zero position of the sliding weight. *Id.*

So too, in *Ranbaxy* the patentee's original independent claim was for a chemical process that involved dissolving starting material into "a highly polar organic solvent." 350 F.3d at 1237. Dependent claims 3, 5 and 7 further limited the highly polar organic solvent limitation of claim 1 to narrower categories of solvents, *i.e.*, sulfoxides, amides and formic acid respectively. *Id.* The examiner rejected claim 1 as obvious and indefinite in the first office action, but indicated that claims 3, 5 and 7 would be allowable if rewritten into independent form. *Id.* at 1238. The patentee responded by canceling claims 1, 3, 5 and 7 and

adding new claim 11, which was identical to claim 1 except that it limited the highly polar organic solvent limitation to "the group consisting of a sulfoxide, an amide and formic acid," *i.e.*, the patentee rewrote the dependent claims into a single, new independent claim. *Id.* While noting that the question of whether there was a presumption of estoppel "is best dealt with on a case-by-case basis," *id.* at 1240, we held that if the amendment "surrendered subject matter that was originally claimed for reasons related to patentability," there is a presumption of estoppel, *id.* (quoting *Deering*, 347 F.3d at 1325). Relying on *Festo* and *Deering*, we held that there was a clear surrender of subject matter because the narrower rewritten claim had been substituted for the broader original independent claim. *Id.* As a result, the patentee was presumed to have "surrendered the equivalents that may have been encompassed by 'highly polar solvent'" as originally claimed. *Id.* at 1241.

The approach of these cases is consistent not only with the language of *Festo*, but also with its theory. In *Festo* the Supreme Court explained that "[a] patentee's decision to narrow his claims through amendment may be presumed to be a general disclaimer of the territory between the original claim and the amended claim." 535 U.S. at 740, 122 S. Ct. 1831. When the scope of the patent claim is narrowed to secure the patent, the court "must regard the patentee as having conceded an inability to claim the broader subject matter." *Id.* at 737, 122 S. Ct. 1831. The scope of the patentee's concession is determined on a limitation-by-limitation basis. *See Festo II*, 344 F.3d at 1367. It necessarily follows that the presumption of surrender applies only to the amended or newly added limitation; there is no surrender of territory as to unamended limitations that were present in the original claim. Thus, when a claim is rewritten from dependent into independent form and the original independent claim is cancelled, "the correct focus is on whether [the] amendment surrendered subject matter."

Ranbaxy, 350 F.3d at 1240 (quoting *Deering*, 347 F.3d at 1325) (alteration in original). Under such circumstances, the surrendered subject matter is defined by the cancellation of independent claims that do not include a particular limitation and the rewriting into independent form of dependent claims that do include that limitation. Equivalents are presumptively not available with respect to that added limitation.

In this case there is a presumptive surrender of all equivalents to the inlet guide vane limitation. The only independent claims asserted in this case, claims 4, 8 and 19, were originally dependent on independent application claims 16, 32, 48 and 49, which did not include the inlet guide vane limitation. Claims 4, 8 and 19 included the inlet guide vane limitation. Claims 4, 8 and 19 were rewritten into independent form, and the original independent claims were cancelled, effectively adding the inlet guide vane limitation to the claimed invention. Honeywell is presumptively estopped from recapturing equivalents to the inlet guide vane limitation.

C

This however is not the end of the matter. In our first *en banc* decision in *Festo*, 234 F.3d 558, we held that narrowing a claim element results in a complete surrender of equivalents with respect to that element. *Id.* at 574. The Supreme Court disagreed. While holding that under such circumstances there was a presumptive surrender as to the entire limitation, the Court held that this presumption could be rebutted in one of three ways. *See Festo*, 535 U.S. at 740-41, 122 S. Ct. 1831. As made clear in *Festo II*, the patentee can rebut the presumption of surrender by showing either:

> that the alleged equivalent would have been unforeseeable at the time of the narrowing amendment, that the rationale underlying the

> narrowing amendment bore no more than a tangential relation to the equivalent in question, or that there was some other reason suggesting that the patentee could not reasonably have been expected to have described the alleged equivalent.

344 F.3d at 1368 (quoting *Festo*, 535 U.S. at 741, 122 S. Ct. 1831). As was the case in *Festo II*, we think the issue of whether the patentee can overcome the presumption is best addressed, in the first instance, by the district court, and we remand for that purpose.

We do not address Sundstrand's other challenge to the verdict of infringement since it is conceded that the jury verdict cannot stand if Honeywell is not entitled to equivalents with respect to the inlet guide vane limitation. In view of our disposition vacating the judgment of infringement, we also need not address Honeywell's challenges to the district courts rulings limiting damages.

II. Invalidity

We turn now to the issue of Sundstrand's counterclaims for invalidity. Sundstrand argues that the asserted claims for the '893 and '194 patents are invalid under the on-sale bar, anticipated and obvious. Since the ultimate issue of validity was submitted to the jury, we assume that all underlying factual issues were resolved in favor of the verdict winner. *Hewlett-Packard*, 340 F.3d at 1325. We review the jury's factual determinations for substantial evidence. *Id.; Minn. Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1305 (Fed. Cir. 2002).

Substantial evidence supports the jury's conclusion that the claims at issue were not invalid under the on-sale bar. Under *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 119 S. Ct. 304, 142 L.Ed. 2d 261 (1998), the on-sale bar cannot

arise unless the invention was (1) the subject of a commercial offer for sale and (2) "ready for patenting" prior to the critical date. *Id.* at 67, 119 S. Ct. 304. An invention is ready for patenting if it was "reduce[ed] to practice before the critical date; or [if] prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Id.* at 67-68, 119 S. Ct. 304. Here Sundstrand urges that certain drawings, substantially identical to those in the '893 and '194 patents, prove that Honeywell's invention was ready for patenting prior to the critical date. Honeywell disagrees. Its expert, Mr. Muller, testified that the drawings relied upon by Sundstrand would not allow "any engineer that [he] kn[ew] of with any amount of experience, to simply take [those drawings] and go off and design a surge control system" because "the details and the operation of the figures themselves are of little or no use in being able to discern how the system operates." (J.A. at 16613-14.) The jury was entitled to resolve the conflicting evidence in favor of Honeywell, *Bio-Tech. Gem. Corp. v. Genentech, Inc.*, 267 F.3d 1325, 1330-31 (Fed. Cir. 2001), particularly given the heavy burden to establish invalidity by clear and convincing evidence. Thus, we agree with the district court that substantial evidence supports the jury's verdict that the claimed invention was not ready for patenting prior to the critical date and not invalid under the on-sale bar.[9]

The jury's findings that the '893 and '194 patents are not anticipated or obvious are also supported by substantial evidence. On the issue of anticipation, Sundstrand argues

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[9] Because we find that substantial evidence supports the jury's finding that the invention was not ready for patenting prior to the critical date, we do not decide whether the agreement and subsequent papers constituted an offer to sell.

that one reference in particular, the Warnock article, anticipates all of the asserted claims. Not surprisingly, the expert testimony presented at trial took opposing views on whether the Warnock article disclosed a system capable of maintaining an essentially constant minimum flow rate, as the claims require. In view of this evidence, we agree with the district court that there was substantial evidence to support the jury's finding of no anticipation. Sundstrand contends that, even if not anticipating, the prior art renders claims 8, 10, and 11 of the '893 patent obvious. However Honeywell's expert, Mr. Muller, testified that the patented invention differs in both function and structure from that described by the prior art. He testified that the prior art did not "have a proportional and integral controller, but only . . . a proportional controller" and that as a result the prior art "var[ied] the flow in order to get away from surge whereas the patented invention was able to "maintain a constant flow." (J.A. at 16, 612.) Evidence of commercial success and copying was also introduced. In light of this evidence, we again agree with the district court that there is substantial evidence to support the jury's finding of nonobviousness. We further conclude that the district court did not abuse its discretion in denying Sundstrand's motion for a new trial on any of the asserted grounds for invalidity.

CONCLUSION

For the forgoing reasons, we conclude that the amendments made during prosecution give rise to a presumptive surrender of equivalents for the inlet guide vane limitation. Consequently, we vacate the judgment of infringement under the doctrine of equivalents and remand to the district court to consider whether Honeywell can rebut that presumption under the *Festo* criteria. We affirm the district court's judgment that the asserted claims of the '893 and '194 patents are not invalid. Because the judgment on liability has been vacated, we do not reach Sundstrand's

argument regarding the sufficiency of evidence supporting the verdict of infringement, nor do we reach Honeywell's arguments on damages.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED

COSTS

Each party shall bear its own costs.

PAULINE NEWMAN, Circuit Judge, dissenting in part.

Today the court changes the law in two new ways. The first way is directly contrary to statute. The second is simply another restriction on equivalency, far exceeding the holdings of the Supreme Court in *Festo* and *Warner-Jenkinson*.

Contrary to 35 U.S.C. § 112 ¶ 4, the court now holds that the act of restating a dependent claim in independent form is a "narrowing amendment" in terms of *Festo*, although the claim had never been rejected or amended or narrowed. From this premise the court holds that all elements of the restated claim are subject to the presumption of surrender of all equivalents, whenever the antecedent independent claim is cancelled. Thus a limitation that has never been narrowed is subject to the presumption of surrender when a broader claim is cancelled, even when the broader claim did not mention that limitation. That is not in accordance with the Court's holding in *Festo*.

This new rule will simply drive patent applicants away from dependent claims and away from the accepted protocol of presenting successively narrowed dependent claims for examination. This new rule will simply raise the cost and increase the difficulty of patent examination. By

adding presumptive estoppels to elements and limitations that were never a basis of rejection and never narrowed during examination, the court further erodes the ability of inventors to protect their inventions. Although the majority attributes its ruling to the Supreme Court, this new leap for inventors is not the Court's work but that of my colleagues. I respectfully dissent.

Restating a Dependent Claim in Independent Form is Not a Change in Scope

The court holds that the placing of a dependent claim in independent form, when required only because the antecedent independent claim was cancelled, is a narrowing amendment as to all elements and limitations of the restated claim. That ruling is contrary to statute. When a dependent claim is placed in independent form, it simply states explicitly what was previously incorporated by reference:

> 35 U.S.C. § 112 ¶ 4. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers. Restating a dependent claim in independent form does not change its content or scope; the claim is of identical content and scope before and after it is rewritten. *See, e.g., Bloom Eng'g Co. v. N. Am. Mfg. Co.*, 129 F.3d 1247, 1250 (Fed. Cir. 1997) ("Bloom did no more than restate original claims 7 and 18 in independent form. . . . Thus this change, standing alone, did not change the scope of original claims 7 and 18."); *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989) ("The jury was properly instructed that a dependent claim includes all the limitations of the claim from which it dependents . . ."); *Hartness Int'l Inc. v. Simplimatic Eng'g Co.*, 819 F.2d

> 1100, 1108 (Fed. Cir. 1987) ("[D]ependent claim 3 included all the limitations of claim 1, with the further limitation of tapered partitions").

35 U.S.C. § 112 ¶ 4 assured that claim scope is unrelated to whether the claim is in independent or dependent form. The Court in *Festo*, did not change that law. My colleagues not only impose the presumptive surrender of *Festo*, but also presume estoppel against the entire universe of technology. That is, instead of presuming surrender of the territory between the original scope of the claimed element and the scope of that element after a narrowing amendment--the rule developed in *Festo*--the court now presumes unlimited surrender when an element was not originally claimed at all and therefore presents no outer limit of surrendered territory.

The Court in *Festo* established a presumption of surrender of the territory between the original scope of the claim and its amended scope. My colleagues now hold that all equivalents, without limit, are presumptively surrendered when the element was not initially claimed, whenever a dependent claim is required to be restated because the antecedent claim was cancelled.

The Honeywell dependent claims added the inlet guide vanes element and what the parties call the deltaP limitation.[1] Although these additions were never narrowed

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[1] The claims at issue, in their original dependent form, were as follows:

> 17. The accessory power unit of Claim 16 wherein said compressor has adjustable inlet guide vanes, the value of said flow-related parameter is substantially independent to the temperature of the compressed air, said comparator means have an adjustable control set

by amendment (or argument), the court holds that they are subject to a presumption of surrender of all equivalents, simply because the antecedent claim was rejected and dropped. However, the antecedent claim did not mention any sort of inlet guide vane or any version of deltaP; these aspects were not previously claimed, and were not amended or narrowed at any time during prosecution.

Thus the court achieves the far-reaching new rule that an element or limitation contained in a dependent claim, although never narrowed and never subject to any ground of rejection, has presumptively surrendered all equivalents. These limitations are now barred from access to routine function/way/result equivalency (the formula of *Graver*

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point representing said desired value of said parameter, and said accessory power unit further comprises means for transmitting to said comparator a reset signal for varying said set point as a function of the position of said inlet guide vanes in accordance with a predetermined reset schedule.

35. The control system of Claim 32 wherein the compressor has adjustable inlet guide vanes, and said control system further comprises a guide vane position sensor and a function generator coupled in series between the inlet guide vanes and said input portion of said comparator.

51. The method of Claim 49 wherein the compressor has adjustable inlet guide vanes, and said method further comprises the step of adjusting the relationship between the magnitudes of said integral and proportional control signals and the magnitudes of said parameter variations as a function of the position of the inlet guide vanes.

The claims were held allowable on the first examiner's action, but were "objected to" as to dependent form. (Claim 35 was also rejected as indefinite under 35 U.S.C. '112; this rejection was overcome by amendment to other elements, not here at issue.)

Tank), and can reach equivalents only on the *Festo* grounds that apply to elements that have had narrowing amendments, *viz.*, unforeseeability and tangentialness.

In so holding, the court ignores its own en banc pronouncement on the applicability of prosecution history estoppel. This court held, upon remand of the *Festo* case from the Supreme Court, that "[t]he first question in a prosecution history estoppel inquiry is whether an amendment filed in the Patent and Trademark Office has narrowed the literal scope of a claim. If the amendment was not narrowing, then prosecution history estoppel does not apply." *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1366-67 (Fed. Cir. 2003). Because restating a claim in independent form does not narrow the literal scope of the claim, every claim at issue in this case is of precisely the scope it had when originally filed. There was no narrowing of the scope of any claim at issue, or of any element or limitation of any claim at issue. Therefore, the claim does not pass the "first question" announced by this court, and "prosecution history estoppel does not apply."

Dependent Claims are an Examination Convenience

The use of dependent claims is encouraged by the patent examining authority as an aid in examination. Its value during examination is reflected in the significantly lower fees charged for examination of dependent claims.

In earlier practice, the Patent Office required that "each claim should be drawn complete in itself." *In re Sexton*, 1873 C.D. 66 (Comm'r Pat. 1873). By the early twentieth century the Office recognized that for clarity, brevity, and convenience the use of dependent claims "would reduce the number of claims and make division between independent inventions clear and easy" because "such a claim would be self-analyzing and self-classifying, and

therefore make the examination of the claim easier." *Ex parte Brown*, 1917 C.D. 22 (Comm'r Pat. 1917). Statutory recognition of dependent claims occurred in 1965, amending § 112 to recognize dependent claims, amending § 282 to state the presumptive validity of dependent claims, and § 41 to reduce the fee for dependent claims. Act of July 24, 1965, Pub. L. 89-83, 79 Stat. 259. The legislative Report stated that the purpose was "to make clear that dependent claims are to be considered individually on their merits." S.Rep. No. 89-301 at 4 (1965), reprinted in 1965 U.S.C.C.A.N. 2315, 2319. In 1975 Title 35 was further amended in connection with the Patent Cooperation Treaty "to take account of a more liberal claim drafting practice in permitting multiple dependent claims as provided by the Treaty." H.R.Rep. No. 94-592, at 4 (1975), reprinted in 1975 U.S.C.C.A.N. 1220, 1224 (referencing Act of Nov. 14, 1975, Pub.L. 94-131 §§ 3, 7, 10, 89 Stat. 685, 690-92).

Each claim defines a separate invention, whether or not written in independent form; and its validity stands or falls separately:

> 35 U.S.C. § 282 Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of the other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.

A dependent claim is independently valid, and is not narrowed by the cancellation of its antecedent claim. *See Altoona Publix Theatres, Inc. v. American Tri-Ergon Corp.*, 294 U.S. 477, 487, 55 S. Ct. 455, 79 L.Ed. 1005 (1935) ("Under the statute it is the claims of the patent which define the invention. And each claim must stand or fall, as itself sufficiently defining invention, independently of the others.") (citations omitted). "[E]ach claim must be considered as defining a separate invention." *Jones v. Hardy*, 727 F.2d

1524, 1528 (Fed. Cir. 1984). *See Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1220 (Fed. Cir. 1995) ("[E]ach claim is a separate statement of the patented invention").

A Claim is Not Narrowed by Cancelling its Antecedent Claim

By statute it is irrelevant whether a claim is in dependent or independent form; it is not a narrowing amendment to go from dependent form to independent form. The majority opinion searches for and finds a narrowing amendment in the cancellation of the broader antecedent claim. However, for the claims here at issue, there was no narrowing amendment of any of the elements or limitations at issue, in any claim.

The majority opinion changes the basic premise of presentation of claims of varying scope and divergent content, in holding that by dropping a broader claim, the claims subordinate to that claim became subject to presumptive estoppel, whether or not the subject matter at issue was included in the broader claim. That is far removed from the Court's holding in *Festo*. Although the majority quotes the Court's statement that "a narrowing amendment made to satisfy any requirement of the Patent Act may give rise to an estoppel," 535 U.S. at 736, 122 S. Ct. 1831, restating a dependent claim into an independent claim of identical scope is not a narrowing amendment; and canceling a broader claim (especially one that does not mention the element at issue for equivalency) is not a narrowing amendment.

In *Festo* the Court recognized that some § 112 amendments are substantive but that other § 112 amendments are formal:

> Petitioner contends that amendments made to comply with § 112 concern the form of the application and not the subject matter of the invention. The PTO might require the applicant to clarify an ambiguous term, to improve the translation of a foreign word, or to rewrite a dependent claim as an independent one. In these cases, petitioner argues, the applicant has no intention of surrendering subject matter and should not be estopped from challenging equivalent devices. While this may be true in some cases, petitioner's argument conflates the patentee's reason for making the amendment with the impact the amendment has on the subject matter.
>
> Estoppel arises when an amendment is made to secure the patent and the amendment narrows the patent's scope. If a § 112 amendment is truly cosmetic, then it would not narrow the patent's scope or raise an estoppel. On the other hand, if a § 112 amendment is necessary and narrows the patent's scope--even if only for the purpose of better description--estoppel may apply.

Festo, 535 U.S. at 736-37, 122 S. Ct. 1831. The majority states that in this passage the Court "rejected the position of the government [that rewriting a dependent claim into independent form does not give rise to a presumption of surrender], stating that rewriting a dependent claim in independent form creates a presumptive surrender if the amendment is 'made to secure the patent.'" Maj. op. at 1143-44. Neither this passage, nor any other, so holds. Indeed, the Court explained that the criterion is whether the § 112 amendment was a narrowing amendment, stating that "it may be true in some cases" than an amendment under

§ 112 does not trigger prosecution history estoppel. *Festo*, 535 U.S. at 736, 122 S. Ct. 1831.

Rewriting of a claim in accordance with 35 U.S.C. § 112 ¶ 4 can never be a narrowing amendment, because, by statute, rewriting a dependent claim in independent form does not narrow the claim's scope. The Court did not purport to overturn that well-respected law. Although it is well established that the prosecution of an element in other claims may affect the scope of that element in all claims, as discussed *post*, the court today rules that the mere presentation of a new element in a dependent claim raises the presumption of surrender of all equivalents of that element whenever the antecedent claim is cancelled. That is simply incorrect.

In the Honeywell claims the newly added element was never the subject of rejection or amendment during prosecution. It is irrelevant whether that element first appeared in a dependent or an independent claim. It is a new and unwarranted enlargement of *Festo*'s law of presumptive surrender, to hold that this presumption arises automatically as to elements that were never rejected, never amended, and never at issue during prosecution, whenever a broader claim is cancelled.

The question is not whether a claim that contains more limitations--for example, a claim that names more parts of a mechanical device--is narrower than a claim that names fewer parts. Of course a claim with more limitations is narrower than a claim with fewer limitations. The issue is whether a claimed element that has never been amended is always subject to the restricted access to equivalency that flows from presumptive surrender based on a narrowing amendment.

According to my colleagues, no element/limitation added by dependent claim, although never rejected, can achieve *Graver Tank* function/way/result equivalency, when the antecedent claim is cancelled for reasons of patentability. That is not what the Court in *Festo* held. The Court stated that there was no per se rule for the group of § 112 amendments that are formalistic instead of substantive, and that the "impact on the subject matter" must always be considered. For example, if the dependent claim were itself rejected for reasons of patentability, it is irrelevant whether the claim is in dependent or independent form. However, when, as here, the dependent claim was *never* rejected, the act of rewriting the dependent claim does not raise a presumptive estoppel to equivalency, whether or not the antecedent claim is cancelled. The Court's *Festo* opinion does not state otherwise.

The Honeywell claims in suit were not rejected on any ground, although the independent claims were rejected on substantive grounds. The district court applied the Federal Circuit's 2002 opinion (before vacatur by the Supreme Court), and on those rigorous grounds of estoppel the district court ascertained which elements or limitations were asserted to be infringed by an equivalent, determined that they involve the inlet guide vanes and the deltaP parameter, and observed that these aspects were not amended during prosecution and were not a subject of rejection. The district court correctly held that these claims were amenable to *Graver Tank* equivalency, and instructed the jury accordingly.

Cancelling an independent claim in favor of a dependent claim restated in independent form, is not the same as making a narrowing amendment to a claim. It is not notice of a retrenchment in the scope of the dependent claim. *See Schwing GmbH v. Putzmeister Aktiengesellschaft*, 305 F.3d 1318, 1324 (Fed. Cir. 2002) ("Although prosecution

history can be a useful tool for interpreting claim terms, it cannot be used to limit the scope of a claim unless the applicant took a position before the PTO that would lead a competitor to believe that the applicant had disavowed coverage of the relevant subject matter."). Merely canceling a broad claim is not a signal to competitors that the patentee disavowed all equivalents of the elements and limitations of remaining claims that were never rejected during prosecution.

The "Objection" to the Honeywell Claims During Examination

The claims at issue were never rejected during patent examination, on prior art or any other ground. They were held to recite allowable subject matter in the first action by the examiner, but because they depended from claims that had been rejected, the examiner "objected" to them.

When the form of a claim is improper, the examiner issues an "objection" rather than a "rejection." MPEP § 706.01 (8th Ed. 2001) discusses this distinction:

> The refusal to grant claims because the subject matter as claimed is considered unpatentable is called a "rejection." . . . If the form of the claim (as distinguished from its substance) is improper, an "objection" is made. An example of a matter of form as to which objection is made is dependency of a claim on a rejected claim, if the dependent claim is otherwise allowable. *See* MPEP § 608.01(n).

MPEP § 608.01(m) lists various grounds of objection to the form of claims, and in *Ex parte Porter* the Board explained that the question of dependent form is formal, not substantive:

> [MPEP § 608.01(n)] properly treats a claim considered to be an improper dependent claim

> an administerial function or formal matter wherein the examiner's ruling can be challenged by way of petition under 37 C.F.R. § 1.181 rather than by appeal under 37 C.F.R. § 1.191.

Ex parte Porter, 25 USPQ2d 1144, 1147 (Bd. Pat. App & Interf. 1992).

The examiner stated that the Honeywell claims in suit were allowable, and would be allowed if placed in independent form. Honeywell then simply cancelled all of the rejected claims, without amendment or argument concerning the rejection, and placed the "objected to" claims in independent form. These claims were then issued. Their scope was never changed. No change was made in any element or limitation, while in either dependent or independent form. The inlet guide vanes and deltaP were not mentioned in any cancelled independent claim, had not been claimed more broadly in any rejected claim, and were not the subject of amendment or argument. These limitations appeared only in the original dependent claims, and were unchanged when the claims were restated in independent form. There was no narrowing amendment. This is a conspicuous distinction from the precedent relied on by the majority.

The district court correctly analyzed this precedent. In *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 681 (Fed. Cir. 1988) the patentee had presented arguments that expressly surrendered the scope being claimed as an equivalent; this court properly held that these arguments applied to all claims, whether or not the claims had themselves been amended. Similarly in *Builders Concrete, Inc. v. Bremerton Concrete Prods. Co.*, 757 F.2d 255, 260 (Fed. Cir. 1985), this court held that although the claim in suit had not been amended, "the precise subject matter that was relinquished in order to obtain allowance" of a different

claim, could not be recaptured under the doctrine of equivalency. In these cases the asserted equivalent had been expressly disclaimed or relinquished during prosecution.

This law is well-established, as reflected in the recent *Deering* and *Ranbaxy* cases, on which the majority places heavy reliance. As stated in *Deering Precision Instruments, L.L.C. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314, 1325 (Fed. Cir. 2003), "the correct focus is on whether the amendment surrendered subject matter that was originally claimed for reasons related to patentability." In *Deering* the original independent claim was directed to a scale that comprised "a sliding weight movably carried by said beam for movement along said scale," and a dependent claim limited the sliding weight element of the independent claim by further requiring that it contain a "zero position." This court held that the territory between the zero position of the sliding weight in the dependent claim and the unlimited position of the sliding weight in the cancelled claim was subject to *Festo* estoppel. That holding is in accord with conventional estoppel and element-by-element analysis.

Similarly in *Ranbaxy Pharms. Inc. v. Apotex, Inc.*, 350 F.3d 1235, 1240 (Fed. Cir. 2003), the original independent claim contained the description "highly polar organic solvent," and dependent claims added solvent categories of sulfoxides, amides, and formic acid. The broad "highly polar organic solvent" was rejected on prior art and the applicant cancelled that claim, retaining the dependent claims' sulfoxides, amides, and formic acid. The dependent claims were then restated in independent form. The court correctly applied *Festo* estoppel to Ranbaxy's assertion of equivalency of other polar solvents. The court applied the rules of estoppel to these narrowed claim limitations; the form of the claims was irrelevant.

Applied to the Honeywell claims, the inlet guide vanes element and deltaP limitation were not narrowed by amendment. The dependent claims added these new features, not present in the original independent claim. In contrast, in *Deering* and *Ranbaxy* the dependent claim limited an element of the original independent claim, raising the presumption of surrender of "all territory between the original claim limitation and the amended claim limitation." *Festo*, 535 U.S. at 740, 122 S. Ct. 1831. In contrast, in the Honeywell situation the inlet guide vanes and deltaP were not claimed in any scope, and there was no surrendered territory of inlet guide vanes and deltaP.

The court thus imposes an unbounded estoppel, for there is no measure of the yielded territory. However, the proper focus is the prosecution-induced change to the element at issue. *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 29, 117 S. Ct. 1040, 137 L.Ed.2d 146 (1997) (equivalency is determined element by element). It is necessary, to implement *Festo* and *Warner-Jenkinson*, to determine whether the dependent claim added a new element or simply limited an existing element. The decision-maker can then determine the scope of the intervening territory, imposing the *Festo* restrictions on equivalency when there is a presumption of surrender, or the equivalency principles of *Graver Tank* when there is no presumption of surrender.

The Challenge to Patentees

My colleagues state that they are preventing subversion of the court's attempts to restrain access to equivalency, by preventing "astute practitioners, through clever claim drafting, from elect[] to treat most, if not all, amendments by merely adding new claim limitations rather than narrowing preexisting ones." Maj. op. at 1141-42. Indeed, it has long been the practice to add new limitations in subordinate claims.

The court holds: "we hold that an amendment adding a new claim limitation constitutes a narrowing amendment that may give rise to an estoppel." That holding is seriously flawed, for it holds that no subordinate claim can avoid presumptive surrender and estoppel whenever a broader claim is cancelled. Yet the writing of broader claims and their cancellation during prosecution is, or was, the common practice. Astute practitioners are indeed needed, for little is left of access to equivalency.

Today's new rule solves no problem, rights no wrong, addresses no unmet need. Future applicants may attempt to obtain access to the doctrine of equivalents through avoiding dependent claims. Patent applications will cost more, since independent claims carry a heavier fee than dependent ones. There will be more opportunities for mistakes, and insignificant changes in the working of limitations that would have been incorporated by reference will be fodder for litigation. Examination will probably take longer, because the use of dependent form adds organization to the claims and makes them easier to understand. The losers are those patentees who had no reason to foresee today's new rule, and future patentees who will have to cope with it.

UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

No. Civ. A. 99-309 GMS.
September 27, 2001

HONEYWELL INTERNATIONAL INC., and HONEYWELL INTELLECTUAL PROPERTIES, INC.,

Plaintiffs,

v.

HAMILTON SUNDSTRAND CORPORATION,

Defendant.

Josy W. Ingersoll, Melanie Sharp, and Christian D. Wright of Young Conaway Stargatt & Taylor LLP, Wilmington, DE. Of Counsel: Jonathan F. Putnam, Todd S. Schulman, Lee Ann Stevenson, and Victoria Reznik of Kirkland & Ellis, New York, NY, Robert J. Krupka, Kirkland & Ellis, Los Angeles, CA. Attorneys for Plaintiff.

Richard D. Kirk, Morris, James Hitchens & Williams LLP, Wilmington, DE. Of Counsel: Richard F. Ziegler, David H. Herrington, Justin S. Anand, Cleary, Gottlieb, Steen & Hamilton, New York, NY, William E. McCracken. G. Christopher Braidwood, Thomas Miller, Marshall O'Toole, Gerstein, Murray & Borun, Chicago, IL. Attorneys for Defendant.

MEMORANDUM OPINION

SLEET, District Judge.

I. INTRODUCTION

On May 17, 1999, Honeywell International, Inc. ("Honeywell") brought this action against Hamilton Sundstrand Corporation ("Sundstrand") alleging that Sundstrand's manufacture and sale of the APS 3200 infringes its 4,380,893 and 4,428,194 patents (the "'893 patent" and "'194 patent," respectively). The patents-in-suit relate to technology for an airplane auxiliary power unit ("APU"). An APU is a small gas turbine engine, usually placed in the tail section of an airplane, that generates electricity for use while the aircraft is on the ground or in flight. An APU also provides compressed air for both starting the aircraft's main engine and environmental control of cabin air. The '893 and '194 patents cover a method for controlling surge, which is an aerodynamic phenomenon in which the air being drawn into the APU reverses direction and can damage the engine. uh

A jury trial was held between 5 and February 16, 2001. On February 16, 2001, the jury returned a verdict finding that: (1) Sundstrand infringed five claims of the '893 patent under the doctrine of equivalents, (2) Sundstrand infringed Claim 4 of the '194 patent under the doctrine of equivalents, (3) Sundstrand's patent infringement was willful, (4) the patents-in-suit were valid and (5) Honeywell was entitled to price erosion damages in the amount of $45,000,000 and reasonable royalty damages in the amount of $1,578,065.

During the course of the trial, both parties properly moved for judgment as a matter of law pursuant to Rule 50 of

the Federal Rules of Civil Procedure--Sundstrand moved for judgment as a matter of law at the close of Honeywell's case-in-chief, Honeywell moved for judgment as a matter of law at the close of Sundstrand's case-in-chief. The court reserved judgment on all JMOL motions. Following the jury's verdict, both parties filed post-trial motions. Presently before the court is (1) Honeywell's renewed motion for judgment as a matter of law on the issue of literal infringement of Claim 4 of the '194 patent, (2) Sundstrand's renewed motions for judgment as a matter of law, or alternatively, for a new trial under Rule 59 of the Federal Rules of Civil Procedure, on the issues of liability, validity and willfulness, and (3) Honeywell's motion for treble damages, attorney's fees, costs and expenses, and pre-judgment interests. The following is the court's decision on all pending post-trial motions.

II. STANDARD OF REVIEW

A. Judgment as a Matter of Law

Under Rule 50 of the Federal Rules of Civil Procedure, a court should grant a motion for judgment as a matter of law only where "there is no legally sufficient basis for a jury to find for [the non-moving] party." *See* Fed. R. Civ. P. 50. Thus, in order to prevail on a renewed motion for JMOL following a jury trial, the moving party "'must show that the jury's findings, presumed or express, are not supported by substantial evidence, or, if they were, that the legal conclusions implied [by] the jury's verdict cannot in law be supported by those findings.'" *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1348 (Fed. Cir. 1998) (quoting *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 893 (Fed. Cir. 1984)). In order to determine whether a legally sufficient basis in fact exists, the trial court must consider all the evidence in a light most favorable to the non-movant, must not determine the credibility of witnesses, and must not

substitute its choice for that of the jury. *See Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1269 (Fed. Cir. 1999) (citations omitted). If, after this analysis, substantial evidence, exists to support the jury's verdict, then the motion for JMOL must be denied. *See id.*

The essential question in deciding a motion for judgment as a matter of law is whether the evidence the jury could have believed in reaching its verdict was substantial enough to support its findings. *See Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1573 (Fed. Cir. 1986). Thus, the question is not what the court might have believed, but what the jury could have reasonably determined. *See Dawn Equip. Co. v. Kentucky Farms, Inc.*, 140 F.3d 1009, 1014 (Fed. Cir. 1998) ("the inquiry is whether a reasonably jury, given the record before it viewed as a whole, could have arrived at the conclusion it did.").

B. Motion for a New Trial

Under Federal Rule of Civil Procedure 59(a), "a new trial may be granted to all or any of the parties and on all or part of the issues in an action in which there has been a trial by jury, for any of the reasons for which new trials have heretofore been granted in actions at law in the courts of the United States." Fed. R. Civ. P. 59(a). The decision to grant or deny a new trial is within the sound discretion of the court. *Allied Chemical Corp. v. Daiflon, Inc.*, 449 U.S. 33, 36, 101 S. Ct. 188, 66 L.Ed.2d 193 (1980). Moreover, the standard for grant of a new trial is less rigorous than the standard for grant of judgment as a matter of law in that the court need not view the evidence in the light most favorable to the verdict winner. *LifeScan Inc. v. Home Diagnostics, Inc.*, 103 F.Supp.2d 345, 350 (D.Del. 2000) (citations omitted). Among the most common reasons for granting a new trial are the following: (1) the jury's verdict is against the clear weight of the evidence, and a new trial must be granted to

prevent a miscarriage of justice; (2) newly discovered evidence exists that would likely alter the outcome of the trial; (3) improper conduct by an attorney or the court unfairly influenced the verdict; or (4) the jury's verdict was facially inconsistent. *Id.*

Finally, the court is particularly mindful that it must not substitute its own judgment of the facts and the credibility of witnesses for those of the jury, but rather, that it should grant a new trial on the basis that the verdict was against the weight of the evidence only where a miscarriage of justice would result if the verdict were to stand. *See Williamson v. Consolidated Rail Corp.*, 926 F.2d 1344, 1352 (3d Cir. 1991); *EEOC v. State of Delaware Dept. of Health and Social Services*, 865 F.2d 1408, 1413 (3d Cir 1989).

III. DISCUSSION

A. Honeywell's Motion for Judgment as a Matter of Law

1. Whether Honeywell is Entitled to Judgment on Literal Infringement of Claim 4 as a Matter of Law?

Honeywell moves for a judgment as a matter of law reversing the jury's findings that the APS 3200 did not literally infringe Claim 4 of the '194 patent. Honeywell argues that it entitled to judgment as a matter of law because it met its burden of proving a prima facie case of infringement by establishing at trial that Sundstrand's APS 3200 surge control system literally infringed Claim 4 of the '194 patent. Honeywell further contends that in response to its prima facie case of infringement, Sundstrand failed to present evidence, which would support Sundstrand's contentions of non-infringement.

Literal infringement of a claim occurs when every limitation recited in a claim appears in the accused device, i.e., when "the properly construed claim reads on the accused device exactly." *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1358 (Fed. Cir. 2000). At trial, Honeywell had the burden of proving literal infringement by a preponderance of the evidence that the APS 3200 includes each and every element found in Claim 4 of the '194 patent. *See Southwall Technologies, Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995). The court must emphasize that on a JMOL motion, this burden is especially high. *See LNP Eng'g Plastics, Inc. v. Miller Waste Mills, Inc.*, 77 F.Supp.2d 514, 547 (D. Del. 1999). The court may grant JMOL in favor of the party bearing the burden of proof only where (1) the movant has established its case by evidence that the jury would not be at liberty to disbelieve and (2) the only reasonable conclusion is in the movant's favor. *See id.*

Because the parties dispute whether there is substantial evidence to support the jury's verdict that the APS 3200 does not literally infringe Claim 4 of the '194 patent, the court will first set forth the claims of the '194 patent and then describe the evidence presented at trial.

a. Claim 4 of the '194 Patent

Claim 4 of the '194 patent states:

A method of utilizing a compressor of a gas turbine engine to power pneumatically-operated apparatus having a variable inlet air flow demand, the compressor having adjustable inlet guide vanes, said method comprising the steps of:

(a) interconnecting a supply duct between the compressor and the pneumatically-operated apparatus;

(b) flowing discharge air from the compressor through said supply duct to the pneumatically-operated apparatus;

(c) maintaining an essentially constant minimum supply duct flow rate, despite fluctuations in the flow rate of air received by the pneumatically-operated apparatus, by exhausting air from said supply duct in response to variations therein of the value of a predetermined, flow-related parameter, the flow rate of air exhausted from said supply duct being related to the magnitude of said parameter value variations in both a proportional and time-integral manner, said maintaining step including the steps of providing an outlet passage from said supply duct, positioning in said outlet passage a surge bleed valve operable to selectively vary the flow of air outwardly through said outlet passage, generating a proportional control signal in response to said variations in said flow-related parameter, and simultaneously utilizing said integral and proportional control signals to operate said surge bleed valve; and

(d) adjusting the relationship between the magnitudes of said integral and proportional control signals and the magnitudes of said parameter variations as a function of the position of the inlet guide vanes.[1]

b. Honeywell's Evidence Supporting Infringement

Honeywell argues that at trial, it presented substantial, competent evidence that Sundstrand's APS 3200 surge control system literally infringed Claim 4 of the '194 patent. According to Honeywell, this evidence took the form of the testimony of Honeywell's technical expert, Gerard Muller, stipulated facts, and admissions by Sundstrand's own witnesses and documents.

Honeywell's expert, Gerard Muller ("Muller"), is an expert in the design and application of gas turbine engines

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[1] Claims 4(a) & (b) are not at issue. Thus, the court will only discuss Claims 4(c) & 4(d).

and compressors. At trial, Muller testified that elements 4(a) & (b) were literally present in Sundstrand's APS 3200. *See* Transcript of Trial, Feb. 5-Feb. 16, 2001 ("Tr.") at 640. As to element 4(c), Muller testified that the APS 3200 also literally maintains a constant minimum flow rate in the supply duct by using a flow-related parameter, called delta P over P or DELPQP, to control the amount of air that is exhausted from the aircraft. He also stated in regard to element 4(c) that the rate of air sent from the supply duct in the APS 3200 is related to variations in a proportional and time integral manner. *See* Tr. 641-652. Finally, Muller testified that as to element 4(d), the APS 3200 also used the position of inlet guide vanes ("IGV") to adjust "the actual relationship of the proportional and integral controllers as it relates to the flow parameter, . . . which is another way of saying, . . . [it] adjusts these values to accommodate for the fact that there is a variation-- that there is a part of the flow control where it--there is no chance for surge, and the lower part of the flow curve, where there is the possibility of surge, referred to as high flow and low flow." Tr. 656-57.

c. Sundstrand's Evidence of No Literal Infringement

At trial, Sundstrand relied primarily upon the testimony of its technical expert, Francis G. Shinskey ("Shinskey").[2] Shinskey explained the differences between Claim 4 of the '194 patent and the APS 3200. In direct contradiction to Muller's testimony Shinskey identified the key distinctions between the accused device and the patents-in-suit as: "the difference in the flow-related parameter, as I said DELPQP is not a flow-related parameter [as in element 4(c)], and secondly, there is the element D of the Claim 4 [that is] completely absent from the APS 3200." Tr. at 1408.

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2 In addition to the testimony of Shinskey, Sundstrand engineer John Szillat ("Szillat") also stated that the APS 3200 did not literally infringe elements 4(c) & 4(d) of the '194 patent.

In further elaborating the differences between the accused product and element 4(c), Shinskey testified that the APS 3200 lacks a flow-related parameter and, therefore, does not satisfy element (c)'s requirement of measuring a flow-related parameter. In defining DELPQP, which Sundstrand identifies as a "Static Pressure Parameter," Shinskey explained that: "There is no flow meter in the APS 3200 used for surge control. The measurable variable used for surge control in the APS 3200 is a combination of the differential pressure taken across the diffuser, which is an integral part of the compressor and the pressure that is measured at the discharge of the compressor." Tr. 1356. Shinskey went on to explain that "[t]he DELPQP measurement is really a composite measurement. It includes compression ratio along with flow." Tr. 1357.

Shinskey also explained that the APS 3200 does not literally infringe element 4(d) of the '194 patent because it does not use inlet guide vane position in the same way as the patent. As to IGV position, Shinskey testified that,

> [i]n case of the APS 3200, IGV position has a completely different function [from the patented invention]. Its function is to lock out the P and I controller from even moving the bleed valve. And the way in which it does it is to -- through the bleed select logic is to throw a switch disconnecting the P and I controller. And finally, the results are completely different. The result of the use of IGV position in the patent is to be sure that the surge controller operate[s] at a safe set point at all conditions of IGV position, whereas in the-the result in the case of the APS 3200, is to insure that when we are an in the high flow condition, the surge controller, the P and I controller does not operate the

bleed valve. So all three are different.
Tr. 1401.

d. Whether JMOL is Warranted in This Case?

Honeywell asserts that it is entitled to JMOL because none of Sundstrand's defenses to infringement provide a legally sufficient basis to support the conclusion that the APS 3200 does not literally infringe Claim 4 of the '194 patent. In support of this contention Honeywell makes three arguments: first, that in claiming that the APS 3200 did not literally infringe Claim 4, Sundstrand's expert asserted that elements 4(c) & 4(d) had to be performed simultaneously; second, that Sundstrand's expert conceded that the APS 3200 did in fact use a flow-related parameter, DELPQP; and third, that Sundstrand's expert claimed there was no literal infringement based upon an interpretation that was rejected by the court as a matter of law when it construed the claim. The court will address these arguments in turn, and then will turn to whether there was substantial evidence presented at trial to support the jury's verdict.

The court finds Honeywell's argument that Sundstrand's evidence was legally insufficient to support a conclusion of non-infringement to be unpersuasive. Even considering that Shinskey said at one point that, "I believe that claim C and claim D must both apply at the same time,"[3] Tr. 1407-08, this does not render Sundstrand's entire case

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[3] Sundstrand characterizes this statement as a "nonresponsive answer to a question that he apparently misheard." *See* D.I. 280 at 18. Whether Shinskey heard the question, or made a misstatement is irrelevant because the statement simply goes to the credibility of Shinskey's testimony. In deciding a motion for JMOL, the court cannot assess the credibility of witnesses. *See Lucas Aerospace, Ltd. v. Unison Indus., L.P.*, 899 F.Supp. 1268, 1272 (D. Del. 1995).

legally insufficient. Although Shinskey may have made this statement, it is clear that his opinion as to why the APS 3200 did not literally infringe each element of Claim 4 of the '194 patent did not depend on this statement. *But see LNP Eng'g Plastics*, 77 F.Supp.2d at 549 (holding that a patentee was entitled to JMOL where the thrust of the defendant's non-infringement argument was that it did not infringe the patents at issue because it was practicing the prior art). Specifically, before making this statement, Shinskey explained in detail why the APS 3200 did not infringe each individual element of Claim 4(c) & (d). Moreover, it is not disputed that the court properly instructed the jury that a finding of infringement did not depend upon simultaneous performance of the elements of the patents.

As to Honeywell's second argument, that no reasonable jury could have concluded that the APS 3200 did not use a flow related parameter, the court finds that there is substantial evidence in the record from which the jury could conclude that the use of DELPQP did not literally infringe the patent. The thrust of Honeywell's argument is that they are entitled to judgment as a matter of law because Sundstrand's experts conceded that DELPQP is a flow-related parameter. Although Sundstrand's witnesses did at times indicate that flow is a component of the Static Pressure Parameter, *see e.g.*, Tr. 1581-82, there is also evidence in the record where Sundstrand's witnesses opined that DELPQP cannot be considered a flow-related parameter, *see e.g.*, Tr. 1356-1358. Based on the evidence presented at trial, the jury could have reasonably determined that the APS 3200's use of DELPQP did not literally infringe the patents.

Honeywell also argues that it is entitled to judgment as a matter of law because Sundstrand relied upon claim construction language that the court rejected. In particular, Honeywell contends that Shinskey's non-infringement testimony improperly imported the limitation of the "set

point" into element 4(d), despite the court's interpretation to the contrary.[4] The court also finds this argument to be unpersuasive. As the court has already explained, although Shinskey when speaking specifically about Claim 4(d), did use the term "set point," *see* Tr. 1400,[5] Sundstrand's non-infringement contentions did not rely upon this claim interpretation.

Finally, in light of the evidence presented at trial, the court finds that there was substantial evidence from which a reasonable jury could conclude that the APS 3200 did not literally infringe elements 4(c) & 4(d) of the '194 patent. Sundstrand presented substantial evidence, through its expert, Shinskey, which explained that because the parameter used in the APS 3200, DELPQP, was "really a composite measurement, [which] includes compression ratio along with flow," Tr. 1357, it did not literally infringe the flow-related parameter described in Claim 4(c) of the '194 patent. Regarding Claim 4(d), Sundstrand also brought forth evidence that the APS 3200 did not literally use IGV positioned in the same way as the patent. *See* Tr. 1401. Based on this evidence, the court concludes that there was substantial evidence to support the jury's verdict. Therefore, Honeywell's motion for judgment as a matter of law on the issue of literal infringement of Claim 4 of the '194 patent is denied.

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4 The court has the power and obligation to construe as a matter of law the meaning of language used in a patent claim. *Se Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc). In keeping with this duty, the court issued an Order on Claim Construction on February 14, 2001. D.I. 252.

5 Shinskey stated that "The function that is performed in the patent is to take the IGV position and adjust the set point of the controller . . . ." Tr. at 1400.

2. Whether Honeywell is Entitled To Judgment As a Matter of Law on Damages?

In a footnote, Honeywell also argues that the court should enter judgment as a matter of law that Honeywell is entitled to price erosion damages of over $71 million, rather than the $45 million awarded by the jury, and that the appropriate reasonable royalty rate is 12 percent rather than the 7.5 percent awarded by the jury's verdict. The sole basis for this motion seems to be that Honeywell put forth substantial evidence on damages and that Sundstrand allegedly did not present meaningful evidence in response. Sundstrand characterizes this JMOL motion on damages as "half-hearted" and argues that Honeywell asks the court to re-weigh the evidence and overturn the jury's verdict. The court agrees. At trial, Sundstrand adduced evidence from which a jury could reasonably conclude that Honeywell's price erosion claims were overstated and that its royalty rate was unreasonably high. Based on the evidence presented at trial, the court concludes that there was substantial evidence from which a reasonable jury could conclude that Honeywell was entitled to $45 million in price erosion damages and a reasonable royalty rate of 7.5 percent.[6] Therefore, Honeywell's motion for judgment as a matter of law on damages is denied.

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[6] *See also* discussion *infra* Section III.C.2. (addressing Sundstrand's Motion for Judgment as a Matter of Law on damages).

B. Hamilton Sundstrand's Motion for Judgment as a Matter of Law On Liability

1. Whether Sundstrand is Entitled to Judgment as a Matter of Law, or Alternatively, to a New Trial, on Infringement Under the Doctrine of Equivalents?

In its motion, Sundstrand argues that it is entitled to judgment as a matter of law because there was no legally sufficient basis for the jury to have found that the APS 3200 infringes either of the patents-in-suit under the doctrine of equivalents. In support of its motion, Sundstrand first argues that the jury's verdict cannot stand because Honeywell's equivalence argument impermissibly disregards the content of the patents' claim language. In addition, Sundstrand argues that it is entitled to judgment as a matter of law because Honeywell failed to support its equivalence claim with particularized testimony.

A device that does not literally infringe a claim may nonetheless infringe "if there is equivalence between those elements of the accused product and the claimed elements of the patented invention." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Infringement under the doctrine of equivalents must be established on a limitation-by-limitation basis. *Id.* at 29, 117 S.Ct. 1040 ("doctrine of equivalents must be applied to the individual elements of the claim, not to the invention as a whole"). Moreover, the court is mindful that it must take a "special vigilance against allowing the concept of equivalence to eliminate completely" the individual elements of the patented invention. *Id.* at 40, 177 S.Ct. 1040.

An element of an accused device is equivalent to an element of the patented invention if the differences between them are insubstantial. *Warner-Jenkinson Co. v. Hilton*

Davis Chem. Co., 520 U.S. at 39, 117 S.Ct. 1040; *Zelinski v. Brunswick Corp.*, 185 F.3d 1311, 1316-17 (Fed. Cir. 1999); *Dawn Equip. Co. v. Kentucky Farms Inc.*, 140 F.3d 1009, 1014 (Fed. Cir. 1998). Alternatively, the accused product infringes under the doctrine of equivalents if the element in the accused device performs substantially the same function in substantially the same way to obtain the same result as the claim limitation. *See Warner-Jenkinson*; 520 U.S. at 39, 117 S.Ct. 1040; *Zelinski v. Brunswick Corp.*, 185 F.3d at 1316-17; *Dawn Equip. Co. v. Kentucky Farms Inc.*, 140 F.3d at 1016. Whether the former, the "insubstantial differences" test, or the latter, the "triple identity" test is applied, the essential inquiry remains the same: "Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?" *Warner-Jenkinson*, 520 U.S. at 40, 117 S.Ct. 1040.

A determination of infringement under the doctrine of equivalence is a factual matter normally reserved for a fact finder. *Sage Products, Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1423 (Fed. Cir. 1997). Although infringement under the doctrine of equivalents is generally considered a question of fact, that does not in and of itself preclude directing judgment in favor of the accused infringer. There is a triable issue of fact only if the evidence is such that a reasonable jury could resolve the question in favor of the patentee. *Dawn Equip. Co. v. Kentucky Farms Inc.*, 140 F.3d at 1017 (reversing district court and granting judgment for defendant where devices were not substantially the same) (citing *Warner-Jenkinson*, 520 U.S. at 39 n.8, 177 S.Ct. 1040)). Finally, just as with literal infringement, the patentee must prove by a preponderance of the evidence that each element of the patent, or its substantial equivalent, exists in the accused device. *See Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985).

With this legal background in mind, the court now considers the issues presented by the parties: whether Honeywell's infringement contentions ignored the limitations of the '893 and '194 patents and, therefore, impermissibly expanded the scope of the claims, and whether Honeywell has satisfied specific evidentiary requirements. The court will address these issues in turn.

a. Whether the Jury's Finding of Equivalence is Precluded as a Matter of Law?

In *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, the Supreme Court urged district courts, in appropriate circumstances to give serious consideration to directing judgment (e.g., in response to a motion for summary judgment or JMOL) on the issue of equivalence under the doctrine of equivalents, and in fact stated that district courts "are obliged" to do so "[w]here the evidence is such that no reasonable jury could determine two elements to be equivalent." 520 U.S. 17, 39 n. 8, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Thus, if Honeywell's theory of equivalence would vitiate a claim, there can be no infringement under the doctrine of equivalents as a matter of law. *See id.*

According to Sundstrand, the jury's finding of infringement under the doctrine of equivalents in this case is precisely the kind of result the Supreme Court and the Federal Circuit have urged district courts to guard against when patent cases are tried to juries. Sundstrand claims that it is entitled to judgment as a matter of law because the jury's finding of equivalence in this case depends on disregarding the specific terms of what the patent claims require and how the accused product works. Thus, Sundstrand is not merely challenging the evidentiary or factual sufficiency of the evidence, but rather, claiming as a matter of law that the APS

3200 falls outside of scope of equivalents and, therefore, a finding of equivalence is not even a permissible option.

Sundstrand alleges that at trial, Honeywell's equivalence arguments completely ignored the content of the claim limitation that specified a particular role for inlet guide vane position in controlling surge. Specifically, Sundstrand charges that Honeywell reduced the comparison of the APS 3200 and the patented claims "to the gross simplification that inlet guide vane position 'is used in the operation of the surge control system.'" D.I. 275 at 11. The sole basis for Sundstrand's argument seems to be that "[t]he differences between the Honeywell patents and the APS 3200 are real and substantial. The surge control system claimed by the patents adjusts the flow rate to be maintained based on the position of the inlet guide vanes. The APS 3200 makes this adjustment based on air temperature instead. This is undisputed." D.I. 275 at 3.

At the outset, the court must emphasize that whether the APS 3200 uses temperature alone to adjust the flow rate is without doubt, in dispute. A quick review of the case docket clearly belies any contention that it is undisputed that the APS 3200 uses only air temperature to adjust the flow rate. In January of 2001, the court denied Sundstrand's motion for summary judgment concerning infringement because there were genuine issues of material fact that prevented the court from ruling as a matter of law. *See* D.I. 185. At the summary judgment stage of this action, the parties clearly disputed whether the use of temperature in the APS 3200 was an additional input to the use of IGV position, or if it was a substitute for IGV position. In light of this dispute, the parties proceeded to trial. At trial, both parties presented competent evidence in the form of expert testimony that supported their respective positions. Ultimately, the jury determined that Honeywell had proved by a preponderance of the evidence that the use of

temperature in the APS 3200 was not a substitute for, but rather, an addition to, the use of IGV position input to control surge that is claimed in the patents.

The court is not unwilling to fulfill its duties with "special vigilance" as directed by the Supreme Court in *Warner-Jenkinson* by guarding against findings of equivalence that ignore the specifics of what the patent claims require. The court also cannot forget, however, its mandate in deciding a JMOL motion--that it may not substitute its own judgment for the jury's opinion where the jury's verdict is based on substantial evidence. *See Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d at 1269. Upon review of the trial record, the court finds that Honeywell's doctrine of equivalents contentions did not consist merely of the oversimplification that inlet guide vane position is used in the APS 3200. Rather, in making its equivalence contentions, Honeywell set forth competent evidence from which a jury could reasonably conclude that the way the APS 3200 uses inlet guide vane position is insubstantially different from the way inlet guide vane position is used in the patent claims.

For example, Honeywell introduced evidence at trial from which a jury could conclude that the flow-related parameter used by the APS 3200, DELPQP, was a direct function of inlet guide vane position.[7] In particular, Honeywell's expert, Muller, when questioned on cross-examination in response to the question stated: "Well, the calculation of DELPQP is a measurement of two static pressures?" Tr. 708.

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[7] Muller further explained that the surge set point used in the APS 3200, which Sundstrand maintains is a function only of temperature, is also affected by flow, which Muller maintains is a function on inlet guide vane position. Tr. at 735-737 (explaining that the surge set point is "obtained from this flow curve, from this flow curve which is generated as we vary the IGV angles from minimum to max").

> It would appear that way. But in a rigorous way, I think that we have to look at this and say when you say DELPQP has no relationship to IGV position, well, as I've been discussing throughout the day, it in fact does in a strong one in fact. In fact, it's part and parcel of how the entire compressor is equaled. DELPQP is a value, basically the result of a division process that has occurred resulting from the change in pressure divided by the pressure at the discharge of the compressor. The division which generates this value, which we call DELPQP, well, the change in pressure and the discharge pressure as, especially the change in pressure, is a result of change in flow. And as we know from the earlier description, the only way you can have a change in flow in the compressor is by changing the IGV, the position of the IGV valves. So in the IGV position-so following it through, as the IGV position changes, it changes the flow, which changes the value of pressure, divided by the pressure, which generates DELPQP which is a function of, in the end, the change in the IGV position.

Tr. at 709. Honeywell has also shown that it elicited admissions from Sundstrand's witnesses which also support this position. Specifically, Alan Gruebel, a Sundstrand engineer, admitted that in the APS 3200, "the position of the inlet guide vanes may affect the parameter Delta P over P." Tr. at 1742-43. In addition, Shinskey, Sundstrand's expert, also stated that in the APS 3200 IGV position "affects the flow and compression ratio at which surge would occur." Tr. at 1562. Shinskey described DELPQP as a composite parameter that is related to both flow and compression ratio. *See* Tr. at 1583. In light of this testimony, the court finds

that Honeywell's equivalence arguments do not vitiate the claim terms. Therefore, they are not legally insufficient.

b. Whether Honeywell Supported Its Equivalence Claim With Particularized Testimony?

Sundstrand also maintains that it is entitled to judgment as a matter of law because Honeywell failed to support its equivalence argument with particularized testimony and linking argument. Specifically, Sundstrand argues that Honeywell's function-way-result equivalence argument is overly broad and general. In addition, Sundstrand also asserts that Honeywell's counsel failed to provide a linking argument explaining why its evidence established equivalence in his summation on infringement. The court will address each of these arguments in turn.

Infringement under the doctrine of equivalents must be established with "particularized testimony and linking argument." *Lear Siegler, Inc. v. Sealy Mattress Co.*, 873 F.2d 1422, 1426 (Fed. Cir. 1989). Thus, "[g]eneralized testimony as to the overall similarity between the claims and the accused infringer's product or process will not suffice." *Texas Instruments Inc. v. Cypress Semiconductor Corp.*, 90 F.3d 1558, 1567 (Fed. Cir. 1996); *Lucas Aerospace Ltd.*, 899 F. Supp. at 1280. The thrust of this requirement is to "ensure that a jury is provided with the proper evidentiary foundation from which it may permissibly conclude that a claim limitation has been met by an equivalent." *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1188 (Fed. Cir. 1998). In light of this requirement, the court finds helpful this court's reasoning in *Lucas Aerospace*, which stated that, "[i]n essence, *Lear Siegler, Inc. v. Sealy Mattress Co.* adds no substantive requirements to prove infringement, but 'merely requires that a patentee prove all elements of his case . . ., with respect to the doctrine of equivalents.'" *Lucas Aerospace Ltd.*, 899 F. Supp. at 1280 (quoting *Malta v.*

Schulmerich Carillons, Inc., 952 F.2d 1320, 1328 (Fed. Cir. 1991)). In other words,

> Pursuant to our precedent, a patentee must still provide particularized testimony and linking argument as to the "insubstantiality of the differences" between the claimed invention and the accused device or process, or with respect to the function, way, result test when such evidence is presented to support a finding of infringement under the doctrine of equivalents. Such evidence must be presented on a limitation-by-limitation basis.

Texas Instruments, 90 F.3d at 1567.

The court must again emphasize that under the Supreme Court's decision in *Warner-Jenkinson*, infringement under the doctrine of equivalents may be established either through the triple identity test or through the insubstantial differences test; and, therefore, there is no "particular linguistic formula" required for an equivalents case. *Id.*, 520 U.S. at 40, 117 S. Ct. 1040. *See also CFMT Inc. v. Steag Microtech Inc.*, 14 F.Supp.2d 572, 591 (D.Del. 1998) ("the court does not believe that there should be a strict formula for evidence needed to support a case alleging infringement under the doctrine of equivalents."). Thus, the court must deny Sundstrand's motion for JMOL, if Honeywell presented particularized testimony in support of either a triple identity or insubstantial differences analysis.

Upon consideration of the trial record, the court finds that Honeywell supported its doctrine of equivalence infringement contentions with sufficiently particularized testimony under either test. First, the court finds that testimony about the equivalent function, way and result of the elements in the patents and the APS 3200 was more than sufficient to meet the standards set by *Lear Seigler*. *See, e.g.*, Tr. at 620-22, 633, 654, 693-94, 697-99, 701-02, 703, 705-

07, 744, and 755 (comparing the function-way-result of the APS 3200 and Claim 4(d) of the '194 patent); Tr. at 620-22, 633, 654, 667-68, 669, 689, 690, 694, 700-01, 703, 729, 744, and 750-51 (comparing the same as to elements 8(f) and 19(g) of the '893 patents). Moreover, Honeywell's expert, Muller also provided particularized testimony in support of the argument that the related elements of the APS 3200 were insubstantially different than the single elements of each claim not present through literal infringement. *See* Tr. at 636-658 (describing how the APS 3200 infringes every claim of Claim 4 of the '194 patent); 660-672 (describing same as to claim 8 of the '893 patent); 674 (describing the same as to claim 10 of '893 patent); 675-676 (describing same as to claim 11 of '893 patent); 682-690 (describing same as to claim 19 of '893 patent); and 691-692 (describing same as to claim 23 of the '893 patent).

Thus, despite Sundstrand's argument to the contrary, the court finds that Honeywell did not merely present generalized testimony as to the overall similarity between the claims and the accused device. *See e.g., Texas Instruments*, 90 F.3d at 1567-68 (explaining that expert provided "merely generalized testimony as to overall similarity" and there was "no discussion of whether or how the way" part of the triple identity test was met); *Malta v. Schulmerich Carillons, Inc.*, 952 F.2d at 1327 (explaining that an expert's "offhand and conclusory statements . . . are not particularized evidence"). In addition, the court finds that Honeywell's equivalence arguments were not legally insufficient. *See e.g., CFMT, Inc. v. Steag Microtech, Inc.*, 14 F.Supp.2d at 591 (explaining that the plaintiff's expert did not "spend any time" specifically discussing the doctrine of equivalents, but instead, the plaintiff chose to focus its efforts on a theory of literal infringement); *LifeScan, Inc. v. Home Diagnostics, Inc.*, 103 F.Supp.2d at 361 (holding that the expert failed to explain how the defendant's device operated in an equivalent manner to one of the patent claims). Rather, the court finds that

Honeywell presented substantial, sufficiently particularized testimony comparing the elements of the APS 3200 to the elements of the patents-in-suit.

Sundstrand also argues that Honeywell's counsel did not adequately discuss the doctrine of equivalents in his closing argument. Thus, Sundstrand contends that he failed to provide sufficient linking argument to explain why Honeywell's evidence established equivalence. Upon consideration of the record, *see* Tr. at 2548-57, the court finds that Honeywell's counsel sufficiently addressed the issue of infringement under the doctrine of equivalents such that it cannot be said that the jury was "put to sea without guiding charts." *Lear Siegler, Inc. v. Sealy Mattress Co.*, 873 F.2d at 1426; *CFMT Inc.*, 14 F.Supp.2d at 590.

Therefore, the court will deny Sundstrand's motion for judgment as a matter of law on the issue of infringement under the doctrine of equivalents because it finds that the jury's verdict was based on substantial evidence.

2. Whether Sundstrand is Entitled to a new Trial on the Issue of Infringement Under the Doctrine of Equivalents?

Sundstrand also argues that it is entitled to a new trial on infringement under the doctrine of equivalents for the same reasons it offered in support of its motion for judgment as a matter of law. In addition, Sundstrand argues that the court should grant its motion for a new trial because of the court's ruling on proposed jury instructions relating to equivalence and because of the court's claim construction of Claim 4(d) of the '194 patent.

As the court has explained in denying Sundstrand's motion for JMOL on the issue of infringement under the doctrine of equivalents, the jury's verdict was supported by

substantial evidence. For these same reasons, the court does not find that the verdict was against the clear weight of the evidence.[8] In determining that the verdict was not against the clear weight of the evidence, the court finds that it is not "quite clear that the jury has reached a seriously erroneous result," *Lafate v. Chase Manhattan Bank*, 123 F.Supp.2d 773, 788 (D.Del. 2000), nor is the court left with the "firm conviction that a mistake has been committed" at trial. *See Railroad Dynamics v. A. Stucki Co.*, 727 F.2d 1506, 1512 (Fed. Cir. 1984). Therefore, the court will deny Sundstrand's motion for a new trial.

Second, as to Sundstrand's claim that it is entitled to a new trial because the court gave erroneous jury instructions, the court will again deny Sundstrand's motion. A new trial on the ground of erroneous instructions is permissible only when it is clear that an error in instructions as a whole was such as to have misled the jury. *See New Idea Farm Equip. Corp. v. Sperry Corp.*, 916 F.2d 1561, 1567 (Fed. Cir. 1990). Moreover, a new trial due to an alleged erroneous instruction may be given where the error is fundamental or may cause a miscarriage of justice. *See Wagner v. Fair Acres Geriatric Center*, 49 F.3d 1002, 1018 (3d Cir. 1995). In evaluating a motion for a new trial due to an alleged legal error in jury instructions, the court must determine (1) whether an error was in fact committed, and (2) whether the error was so prejudicial that denial of a new trial would be "inconsistent with substantial justice." *Lafate v. Chase Manhattan Bank*, 123 F.Supp.2d 773, 785 (D.Del. 2000). In doing so, the court should examine the jury instructions as a whole, not just specific provisions in isolation. *Id.*

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[8] The court is aware that a new trial may be granted even when judgment as a matter of law is inappropriate, that is, even if the verdict is supported by substantial evidence. *See Roebuck v. Drexel Univ.*, 852 F.2d 715, 735 (3d Cir. 1988).

In this case, the specific challenges that Sundstrand makes were considered and rejected by the court after hearing argument on the issue. *See* Tr. at 2184-85 (considering Sundstrand's request to further amend the jury instructions). Upon review of the record, the court finds that Sundstrand has not demonstrated that the court's instructions were erroneous as a matter of law. Although Sundstrand claims that court in instructing the jury on equivalence, it has not demonstrated how the court's alleged errors in instructing the jury caused the jury to be misled or confused. For these reasons, the court will deny Sundstrand's motion for a new trial based on alleged erroneous equivalence instructions.

Finally, the court is also not persuaded that Sundstrand is entitled to a new trial because of the court's construction of Claim 4(d) of the '194 patent. Sundstrand relies on the arguments made in its claim construction briefs in support of its motion for a new trial. The court has already considered these arguments, and concludes that Sundstrand has failed to raise a valid basis for reconsideration of the issue. Therefore, the court will deny Sundstrand's motion for a new trial.[9]

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[9] Sundstrand also argues that Honeywell's assertion of equivalence is barred by the Federal Circuit's decision in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558 (Fed. Cir. 2000) (en banc), *cert. granted*, 533 U.S. 915, 121 S. Ct. 2519, 150 L.Ed.2d 692 (2001). As both parties correctly point out, the court has already considered and rejected this argument on summary judgment, D.I. 187, and reconsideration, D.I. 223. Therefore, the court will not address this issue again.

3. Whether Sundstrand is Entitled to Judgment As a Matter of Law on Invalidity Under the On Sale Bar?

The jury found that the patented inventions were not on sale prior to the critical date of February 19, 1980. Sundstrand contends that evidence in the record demonstrates that Honeywell sold an APU incorporating the surge control logic covered by the patents-in-suit before the critical date. Thus, Sundstrand argues that it is entitled to judgment as a matter of law because the jury's verdict was not supported by substantial evidence.

Section 102(b) of the Patent Act prohibits granting a patent for an invention that was "on sale" in the U.S. more than one year before the patent application date. 35 U.S.C. § 102(b). The "critical date" in a Section 102(b) inquiry is defined as exactly one year before a patent application is filed. The on-sale bar applies when two conditions are satisfied before the critical date of one year before the filing date of the application: (1) a product embodying the claimed invention is the subject of a commercial offer for sale; and (2) the claimed invention is ready for patenting. *See Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 67, 119 S. Ct. 304, 142 L.Ed.2d 261 (1998). A claimed invention is ready for patenting if it is reduced to practice or if there is "proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Id.* Whether an invention was on sale more than one year before th patent's application date is a question of law for the court to decide based on underlying factual determinations. *See Abbott Lab. v. Geneva Pharm., Inc.*, 182 F.3d 1315, 1317 (Fed. Cir. 1999), *cert. denied*, 528 U.S. 1078, 120 S. Ct. 796, 145 L.Ed.2d 671 (2000); *Ferag AG v. Quipp Inc.*, 45 F.3d 1562, 1566 (Fed. Cir. 1995). The goal of Section 102(b) is to prevent inventors from exploiting the commercial value of an invention while deferring the

beginning of the statutory period. *Ferag AG*, 45 F.3d at 1566. At trial, Sundstrand bore the burden of establishing that Honeywell had violated the on sale bar by clear and convincing evidence. *See Pfaff v. Wells*, 525 U.S. at 66-67.

Sundstrand argues that it is entitled to judgment as a matter of law because Honeywell signed contracts with both Boeing and Airbus to sell an APU known as the 331 APU in 1978 before the critical date. Upon consideration of the trial record, the court finds that judgment as a matter of law is not warranted. Honeywell presented substantial evidence from which a reasonable jury could conclude that the products offered for sale in the Boeing and Airbus contracts were not products which embodied the subject matter claimed in the '194 and '893 patents. In particular, Honeywell offered evidence that the contracts cited by Sundstrand did not contain sufficiently specific reference to Honeywell's patented surge control inventions. *See* Defendant's Trial Exhibit ("DTX") 37 and 168. Honeywell also presented evidence that three pre-critical date drawings identified by Sundstrand did not themselves constitute commercial offers for sale, *See* DTX 37, 38 and 39.

Honeywell also presented evidence at trial from which a reasonable jury could conclude that the patented inventions were not ready for patenting prior to the critical date. Honeywell presented evidence that the documents at issue were not sufficiently specific to enable one of ordinary skill to practice the Honeywell inventions. *See* Tr. at 2313-19 and 1795. *See also e.g.*, Tr. at 1781-82 (Inventor Stokes describing DTX 38, "I wouldn't call [the document at issue] a final configuration"); Tr. at 1536 (Sundstrand's expert Shinskey discussing DTX 38: "a final configuration as described here, that doesn't mean that the job is done and that this product will work when it's in the field"). In addition, Honeywell presented evidence that the patented surge control systems were still undergoing development after February

19, 1980. Thus, the inventions could not have been ready for patenting prior to the critical date. *See e.g.*, Plaintiff's Trial Exhibit ("PTX") 35, 39 and 40.

In light of the evidence presented at trial, the jury could have reasonably concluded that Sundstrand did not establish that Honeywell violated the on sale bar by clear and convincing evidence. Moreover, considering that Sundstrand had the burden of proving its case by clear and convincing evidence, the court cannot conclude that Sundstrand established that Honeywell violated the on sale bar by evidence that the jury would not be at liberty to disbelieve, nor can the court conclude that the only reasonable conclusion would be in Sundstrand's favor. *See LNP Eng'g Plastics*, 77 F.Supp.2d at 547. Therefore, the court will deny Sundstrand's motion for judgment as a matter of law on this issue.

4. Whether Sundstrand is Entitled to Judgment as a Matter of Law on Invalidity Because the Patents Were Anticipated and Obvious?

The jury found that the patents-in-suit were valid over the prior art. Sundstrand argues that it is entitled to judgment as a matter of law because prior art references and the testimony of its expert, Mr. Shinskey, establish prior art references anticipated and rendered obvious the '893 and '194 patents. Sundstrand identified these prior art references at trial as Warnock (1976), DTX 147, Kempe (1963), DTX 5, White (1972), DTX 6 and the reprint of Fallin (1968), DTX 19 in Shinskey (1978), DTX 146. *See* Tr. at 1425-1527. The court will address the issues of invalidity due to anticipation and obviousness separately.

a. Anticipation

A claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference. *Celeritas Techs., Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998), *cert. denied*, 525 U.S. 1106, 119 S. Ct. 874, 142 L.Ed.2d 774 (1999). Accordingly, invalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). The prior art need not state the elements of the claim in identical language. *See Procter & Gamble Co. v. Nabisco Brands, Inc.*, 711 F. Supp. 759, 762 (D. Del. 1989). Anticipation is a question of fact. *See In re Graves*, 69 F.3d 1147, 1151 (Fed. Cir. 1995). The defendant bears the burden of proving invalidity due to anticipation by clear and convincing evidence. *See Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000).

At trial, Honeywell introduced evidence that none of the four prior art references advanced by Sundstrand disclosed each element of the challenged claims such that one skilled in the art could practice the invention. For example, Honeywell offered evidence that none of the prior art references made reference to APUs or to any application to the aerospace industry. *See* Tr. at 1612-23, 1617, 1660-61, 1664-65. In addition, Honeywell cross-examined the defendant's expert, Shinskey as to each of the four references and elicited testimony from which a reasonable jury could conclude that the patents were not anticipated by the prior art. Finally, Honeywell presented evidence that none of the prior art references advanced by Sundstrand addressed the "unique ability for the load compressor to operate under a continuous minimum flow condition regardless of the surge

bleed valve's position." Tr. at 2293-94. In light of the evidence presented at trial, a reasonable jury could conclude that Sundstrand failed to demonstrate by clear and convincing evidence that any of the prior art references it advanced anticipated the patents-in-suit.[10]

b. Obviousness

Section 103 prohibits the granting of a patent "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). The ultimate determination of whether an invention would have been obvious under 35 U.S.C. § 103(a) is a legal conclusion based on underlying findings of fact. *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000). To determine the question of obviousness, the court should look to: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Riverwood Int'l Corp. v. The Mead Corp.*, 212 F.3d 1365, 1366 (Fed. Cir. 2000) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S. Ct. 684, 15 L.Ed.2d 545 (1966). "Such secondary considerations as commercial success, long felt but unsolved

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10 Sundstrand also argues that it is entitled to judgment as a matter of law because Honeywell's defense to anticipation (and obviousness) relied upon improper claim construction. The court is not persuaded by this argument. First, as Honeywell correctly points out, assuming that Honeywell did rely upon improper claim construction, Sundstrand did not properly raise the issue at trial by objecting to Mr. Muller's supposed claim construction. Second, the court finds that Mr. Muller did not engage in claim construction, but instead, that he explained why the prior art references disclosed a surge control system that met the limitation at issue.

needs, [and] failure of others" [to invent] are also relevant to the obviousness inquiry. *Ryko Manu. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 716 (Fed. Cir. 1991).

Obviousness may not be established using hindsight. *See Kahn v. General Motors Corp.*, 135 F.3d 1472, 1479 (Fed. Cir. 1998). In determining obviousness, the invention must be considered as a whole and the claims must be considered in their entirety. *Id.* at 1479-80. Moreover, when obviousness is based on a combination of two or more particular prior art references, there must be a showing of a suggestion or motivation to combine the teachings of those references, though it need not be expressly stated. *Riverwood* at 1366.

At trial, Honeywell presented evidence that no combination of the prior art references upon which Sundstrand relied rendered the patents-in-suit obvious because they did not discuss a surge control system that maintained an essentially constant minimum flow rate. *See e.g.*, Tr. at 2311-12. In addition, Honeywell presented evidence of secondary considerations that would support a jury verdict of nonobviousness. *See e.g.*, Tr. at 910, 970-71, 1223-35, and 1303-04 (relating to commercial success of the patented invention).

Upon consideration of the evidence presented at trial, the court finds that the jury's finding that the patents-in-suit were valid and were neither anticipated nor rendered obvious by prior art to be supported by substantial evidence. Therefore, the court will deny the defendant's motion for judgment as a matter of law on the issue of validity.

C. Hamilton Sundstrand's Motion for Judgment as a Matter of Law as to Issues Pertaining to Damages and Willfulness

1. Whether Sundstrand is Entitled to Judgment as a Matter of Law Limiting the Damages Award to $150,000 Due to the Availability of a Non-Infringing Alternative?

Sundstrand next argues that it is entitled to judgment as a matter of law limiting Honeywell's damages to $150,000 because a non-infringing alternative was available during the infringement period. Thus, Sundstrand contends that the jury's damages award was not based on substantial evidence.

Sundstrand maintains that the availability of an acceptable non-infringing alternative would preclude Honeywell from recovering price erosion damages. In order to be an acceptable non-infringing alternative, the substitute product must have the advantages of the patented product. *C.R. Bard, Inc. v. Boston Scientific Corp.*, 250 F.3d 761, 2000 WL 915241, at *3 (Fed. Cir. July 7, 2000) (unpublished) (citing *Stryker Corp. v. Intermedics Orthopedics, Inc.*, 96 F.3d 1409, 1418 (Fed. Cir. 1996)). Moreover, to be an acceptable non-infringing substitute, the product or process must have been available or on the market. *Grain Processing Corp. v. American Maize Prods. Co.*, 108 F.3d 1392, 1997 WL 71726, at *2 (Fed. Cir. 1997) (unpublished). In this case, there is no dispute that the alleged non-infringing design was not on the market. The parties are in dispute, however, as to whether an acceptable non-infringing alternative was available.[11]

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[11] The critical time period for determining availability of an alternative is the period of infringement for which the patent owner claims damages; this period is known as the "accounting period." *Grain Processing Corp. v. American Maize-Products Co.*, 185 F.3d 1341, 1353 (Fed. Cir. 1999). According to Sundstrand, the existence of a non-infringing alternative prior to February 3, 1999 would preclude

A non-infringing alternative is only available during the accounting period if the infringer had all of the necessary equipment, know-how, and experience to [use the alternative] whether it chose to do so during the time of infringement. *See Grain Processing Corp. v. American Maize-Products Co.*, 185 F.3d 1341, 1354 (Fed. Cir. 1999). "When an alleged alternative is not on the market during the accounting period, a trial court may reasonably infer that it was not available as a non-infringing substitute at that time." *Id.* at 1353. Also, the mere fact of switching to a non-infringing product years after the period of infringement does not establish the presence of a non-infringing substitute during the period of infringement. *See id.* 185 F.3d at 1348 and 1353.

The accused infringer has the burden to overcome the inference raised when a substitute design is not on the market by showing that the substitute was available during the accounting period. *See id.* at 1353. "Mere speculation or conclusory assertions will not suffice to overcome the inference." *Id.* As the Federal Circuit Court of Appeals explained in *Grain Processing v. American Maize-Products*:

> After all, the infringer chose to produce the infringing, rather than non-infringing, product. Thus, the trial court must proceed with caution in assessing proof of the availability of substitutes not actually sold during the period of infringement. Acceptable substitutes that the infringer proves were available during the accounting period can

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Honeywell from recovering price erosion damages, and the existence of a non-infringing alternative prior to May of 1993 would cap Honeywell's ability to recover reasonable royalty damages.

> preclude or limit lost profits; substitutes only theoretically possible will not.

Id. Finally, the court notes that the existence of a non-infringing substitute is a question of fact. *See Grain Processing Corp.*, 185 F.3d at 1352; *Minnesota Mining and Manufacturing Co. v. Johnson & Johnson Orthopeadics*, 976 F.2d 1559, 1577 (Fed. Cir. 1992).

In support of its claim that a non-infringing alternative was available, Sundstrand offered the testimony of Sundstrand engineer, John Szillat. Szillat testified that in the fall of 2000, he conducted tests confirming that the high flow/low flow logic was not necessary under actual flight conditions. *See* Tr. at 1880-81, 1882-83, 1888-91, DTX 1485. Thus, Szillat explained that Sundstrand had modified the software code for the control logic of the APS 3200 to eliminate the high flow/low flow logic that Honeywell argues infringes its patents. Szillat further testified that he believed that Sundstrand could have made this modification in 1993. *See id.* at 1883. Szillat also admitted that in September of 2000, he was asked by trial counsel to look at the question of potential alternatives to the current high flow logic that was being used in the APS 3200. *See* Tr. at 1880.

In further support of its claim that a non-infringing alternative was available, Sundstrand also offered evidence of the substitute design's implementation by pointing to an Airbus test flight of the substitute design and the fact that Federal Aviation Administration (FAA) approval was imminent, with actual implementation set to occur in April or May of 2001. Finally, Sundstrand offered evidence that this substitute design would have been an acceptable alternative. *See* Tr. 1890-1891.

In response to Sundstrand's claim that a non-infringing alternative existed, Honeywell argued that

Sundstrand was not capable of implementing the alternative design in 1993, or at any time prior to the expiration of the accounting period. Honeywell presented evidence that the putative non-infringing alternative was not available because it had not been finalized, approved, or implemented. *See* Tr. at 1902-03. For example, Honeywell attempted to demonstrate that an alternative design was not available by calling into question Airbus' supposed acceptance of the alternative design. *See* Tr. at 1924. In further support of its argument that the alternative design was not available, Honeywell offered evidence that Sundstrand had attempted to address a problem identified as the "double solution" problem up through the year 2000. *See* PTX 916; Tr. at 1962-63. According to Honeywell, the infringing high flow/low flow inlet guide vane test had been included in the APS 3200's surge control logic in order to solve this "double-solution" characteristic of DELPQP. *See* Tr. at 1930.

In light of this evidence, the court finds that a reasonable jury could find that Honeywell offered testimony which would demonstrate that the alternative design was still in development and, thus, not available. Technology which is still in development during the accounting period is not considered to be an available alternative. *See e.g., Kaufman Co. v. Lantech, Inc.*, 926 F.2d 1136, 1142 (Fed. Cir. 1991) (explaining that an alleged substitute that was "immature and more expensive than the patented technology during the time of infringement cannot have been an acceptable non-infringing substitute"); *Cf. Minnesota Mining*, at 976 F.2d at 1578 (affirming lower court finding that difficulty in developing a non-infringing alternative, which was admittedly done for the purposes of litigation, was evidence that a non-infringing substitute was not available).

The jury also could have reasonably determined that a non-infringing alternative was not available because

Honeywell challenged the credibility of Sundstrand engineer, John Szillat. In his testimony, Szillat conceded that he did not work at the company until 1998, and the he "really [did not] know what was done prior to when [he] worked on the 3200 as far as what alternatives had been considered." Tr. at 1921. In light of this admission, a jury could reasonably conclude that Sundstrand had failed to establish that it had the capability to produce a non-infringing alternative and that Szillat's claim was speculative at best. *Cf. Minco Inc. v. Combustion Eng'g, Inc.*, 95 F.3d 1109, 1119 (Fed. Cir. 1996) (explaining that "testimony that an infringer might have been able to design around a patent does not, in itself, defeat a claim for lost profits"). In addition, Honeywell challenged whether the alternative design was available as early as 1993 by demonstrating that the search for a non-infringing alternative was motivated in part by the suggestions of a trial attorney late in the year of 2000. *See* Tr. at 1968-69. *But see Grain Processing*, 185 F.3d at 1354 (affirming district court finding that a non-infringing alternative was available, because the evidence demonstrated that the defendant did not have to 'invent around' the patent, but rather, all it had to do was switch to using the available non-infringing alternative).[12]

2. Whether Sundstrand is Entitled to Judgment as a Matter of Law, or in the Alternative, a New Trial, On the Issue of Price Erosion Damages?

Sundstrand next argues that it is entitled to judgment as a matter of law on damages because the evidence offered by Honeywell in support of its price erosion claim was

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[12] In the alternative, Sundstrand argues that it is entitled to a new trial because the jury's verdict was against the clear weight of the evidence. In light of the trial record described above, the court is not persuaded by this argument. Therefore, the court will also deny Sundstrand's motion for a new trial.

legally insufficient. Sundstrand also argues that it is entitled to a new trial on the issue of price erosion damages. The court will address these arguments separately.

a. Judgment as a Matter of Law

The Patent Act provides for "damages adequate to compensate for the infringement but in no event less than a reasonable royalty for the use made of the invention by the infringer." *Minco Inc.*, 95 F.3d at 1118 (citing 35 U.S.C. § 284). Adequate damages can include lost profits due to diverted sales, price erosion, and increased expenditures caused by infringement. *Id.* (citing *Lam, Inc. v Johns-Manville Corp.*, 718 F.2d 1056, 1065 (Fed. Cir. 1983)). Lost profits as a result of price erosion are compensable damages that stand on the same ground as damages caused by lost sales. *Micro Motion, Inc. v. Exac Corp.*, 761 F.Supp. 1420, 1430 (N.D. Cal. 1991) (citing *Lam*, 718 F.2d at 1065). In most price erosion cases, a patent owner has reduced the actual price of its patented product in response to an infringer's compensation. *Id.* (citing *Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 553, 6 S. Ct. 934, 29 L.Ed. 954 (1886)). A price erosion claim can also be sustained by a patent holder who proves that he would have increased his prices had the infringer not been in competition with him. *See id.* (citing *Kalman v. Berlyn Corp.*, 914 F.2d 1473, 1485 (Fed. Cir. 1990); *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 902 (Fed. Cir. 1986)).

In order to show "but for" causation and entitlement to lost profits, a patentee must reconstruct the market to show, hypothetically, "likely outcomes with infringement factored out of the economic picture." *Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.*, 246 F.3d 1336, 1355 (Fed. Cir. 2001) (citing *Grain Processing Corp. v. American*). *Maize-Prods.*, 185 F.3d 1341, 1350 (Fed. Cir. 1999). Such market reconstruction,

although hypothetical, requires "sound economic proof of the nature of the market." *Id.* Although damages may not be based on speculation, they need not be proved with unerring precision either. *See Minnesota Mining*, 976 F.2d at 1579 (citations omitted). In proving damages, the patentee may use a wide variety of reconstruction theories where the patentee has presented reliable economic evidence of "but for" causation. *See Crystal Semiconductor*, 246 F.3d at 1355. With these principles in mind, the court turns to whether the jury's damages award was supported by substantial evidence.

In its motion for judgment as a matter of law, Sundstrand maintains that the evidence offered by Honeywell in support of its claim for price erosion damages was too speculative, and thus, the jury's price erosion award should be reversed. Sundstrand claims that the evidence presented at trial was legally insufficient because first, Honeywell relied on the faulty premise that absent competition from Sundstrand, it would have enjoyed a sole source position in the market; second, the testimony of Gregory Albert, Honeywell's product line director, cannot support its price erosion claims because his statements were conclusory and constituted unsupported lay opinion; and third, Honeywell's damages expert, Julie Davis, assumed that price erosion occurred, but did not offer any market study or other evidence from which the jury could reasonably determine the level of pricing that Honeywell would have applied absent competition from Sundstrand.

First, the court recognizes that in a two-supplier market, it is reasonable to assume, provided the patent owner has the manufacturing and marketing capabilities, that the patent owner would have made the infringer's sales absent infringing competition. *See State Indus. Inc. v. Mor-Flo Indus. Inc.*, 883 F.2d 1573, 1578 (Fed. Cir. 1989). Thus, a patent owner's initial burden can be met by showing the

existence of a two-supplier market. *See Polymer Indus. Prod. Co. v. Bridgestone/Firestone, Inc.*, Nos. 00-1271, 00-1299, 2001 WL 253259, at *5 (Fed. Cir. Mar. 13, 2001) (citing *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1165 (Fed. Cir. 1991)). At trial, Honeywell presented evidence that it operates in a two supplier market. *See* Tr. at 427, 852, 1154. In addition, two of Sundstrand's witnesses also gave testimony indicating that Honeywell and Sundstrand operate in a two-supplier market. *See e.g.*, Tr. at 1310-11. In particular, Sundstrand's expert on damages, Dennis Staats, in describing the APU market admitted that "To some extent it is a two supplier market. And I agree on the concept of [a] two supplier market for a certain piece of it." Tr. at 2015. In light of the record, the court finds that the jury could have reasonably concluded that Honeywell operates in a two-supplier market.[13]

Second, Sundstrand argues that the testimony of Gregory Albert, Honeywell's product line director, was too speculative. At trial, Honeywell offered testimony from both a fact witness, Albert, and an expert witness, Davis, who testified that economic concessions granted to 14 airline customers were caused by Sundstrand's infringing competition. In claiming that the Honeywell made price concessions due to infringing competition, Albert identified fourteen contracts and testified that "[i]n every one of these

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[13] At the close of evidence, the court gave the jury the following instruction which was agreed upon by the parties prior to trial:

> If you conclude that Hamilton Sundstrand and Honeywell are the only two suppliers in the market for the products in question, you may reasonably infer that any amount of lowered prices that Honeywell has shown was caused by Hamilton Sundstrand's sales of its APUs and services. However, this inference can be rebutted by other evidence in the record concerning Honeywell's prices. Tr. at 2461

14 cases, we have made concessions, economic concessions, to those customers as a result of the competition with Hamilton Sundstrand." Tr. at 875. Honeywell also offered testimony of its Aerospace President, Steve Loranger, who testified that the APU market changed when Sundstrand entered into it in the early 1990s as "it became necessary to start significantly discounting the maintenance service costs . . . ." Tr. at 355-56. Although Sundstrand characterizes the evidence offered by Honeywell regarding price concessions as speculative, the court is not persuaded by this argument because Albert's testimony was based on his personal knowledge and experience. An award of damages for price erosion can be based on the testimony of a patent owner. *See Kalman v. Berlyn Corp.*, 914 F.2d at 1485 (citing *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 902 (Fed. Cir. 1986)); *Tenax Corp. v. Tensar Corp.*, Civ. No. G-89-424, 1991 WL 218508, at *9 (D. Md. Apr. 3, 1991) (explaining that a fact witness on damages could testify that prices were reduced due to infringer's competition, where witness testified upon his personal knowledge and involvement); *Micro Motion, Inc. v. Exac Corp.*, 761 F. Supp. at 1431 ("[t]he testimony at trial of Micro Motion managers responsible for its pricing decisions uniformly supports the proposition that Micro Motion would have increased prices had Exac not been in the market."). Based upon the trial record, the court finds that Honeywell's evidence concerning price concessions was not too speculative. Thus, Honeywell's claim for price erosion damages were legally sufficient to support the jury's damages award.

Finally, Sundstrand challenges the testimony of Honeywell's damages expert, Julie Davis. First, Sundstrand charges Davis with solely relying on information from Gregory Albert, whose testimony the court has already explained was not too speculative to support an award for price erosion damages. Moreover, Davis testified that she did not rely solely on Albert, rather she stated that, "[e]ach of

my footnotes describe exactly how I determined what the prices would have been and they don't necessarily rely on Mr. Albert's opinion." Tr. at 1180. Next, Sundstrand argues that Honeywell's claim for price erosion damages is legally insufficient because Davis allegedly failed to conduct a market study. At trial, Davis was asked on cross-examination about whether she conducted a market analysis consistent with the methods described in *Intellectual Property Infringement Damages, a Litigation Support Handbook*, by Russell Parr. Tr. at 1179 (referring to DTX 1672). In response, Davis stated that she did not follow the suggestions of Mr. Parr, but rather, she "chose to make a more detailed analysis of all the APUs involved in the case." Tr. at 1180. Considering that a patent owner has "significant latitude" in proving its damages, *Grain Processing*, 185 F.3d at 1350, the court finds that Davis was not required to conduct the type of market analysis described by Parr. In this case, Honeywell presented ample evidence at trial describing Davis' methodology. *See* Tr. at 1096-1156. In light of this evidence, the jury could have reasonably concluded that Davis' methodology and testimony on damages were not faulty and were adequately supported.[14] *But see e.g., Crystal Semiconductor*, 246 F.3d at 1357-58 (affirming district court's denial of price erosion damages where the expert used a benchmark methodology that was unreliable because it compared two markets that were significantly different).

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[14] The court also notes that the jury could have also reasonably doubted the credibility of Sundstrand's expert on damages, Mr. Staats. In fact, in his summation, Sundstrand's counsel admitted that Staats had in fact made an error in his analysis. *See* Tr. at 2634 (stating about Staats, "And he blew it in that one respect.").

b. Motion for a New Trial

Sundstrand also moves for a new trial on the damages issue. Sundstrand argues that it should be granted a new trial because the verdict was against the clear weight of the evidence. Also, Sundstrand argues that it is entitled to a new trial due to the court's exclusion of testimony from its witness, Karl Johanson and the court's acceptance of Davis' expert opinion. Finally, Sundstrand claims that the court gave an erroneous instruction on whether the jury could consider Honeywell's sole source market position. The court will address these issues in turn.

First, the court finds that the jury's damages award was not against the clear weight of the evidence. As the court has already explained, both sides set forth competent evidence on the damages issue. Thus, the court sees no reason to substitute its own judgment of the credibility of the facts and witnesses for that of the jury. Therefore, the court will deny the defendant's motion for a new trial on the basis that the damages award was given against the clear weight of the evidence.

Next, the court will address Sundstrand's challenges to its evidentiary rulings concerning Johanson and Davis. Sundstrand suggests that a new trial is warranted due to the limitations the court placed on the testimony of Karl Johanson. Sundstrand proposed to offer Johanson's testimony for the proposition that Sundstrand also granted concessions to customers, even on "sole source" products. The court excluded Johanson's testimony pursuant to rule 26(e)(2) of the Federal Rules of Civil Procedure.[15] The court

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15 Fed.R.Civ.P. 26(e)(2) reads:

> A party is under a duty seasonably to amend a prior response to an interrogatory, request for production, or

based its ruling on the following facts: (1) Honeywell had made a request for related documents in its first request for document production and Sundstrand did not comply because they did not believe the information was relevant, *see* Tr. at 1277; (2) Honeywell filed a 30(b)(6) notice and identified possible sole source information as a category in Topic 16,[16] *see* Tr. at 1279; (3) at the deposition of 30(b)(6) witness Johanson, Sundstrand limited the subject matter of Topic 16 to the APS 3200, *see* Tr. at 1279; (4) Sundstrand later determined the information was relevant,[17] *see* Tr. at 1282; and (5) even though Sundstrand determined that sole source market information was relevant, they failed to comply with any of Honeywell's earlier request for related documents.

Although the facts described above demonstrate that Sundstrand indeed did not seasonably amend its prior responses to discovery, Sundstrand maintains that the court

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> request for admission if the party learns that the response is in some material respect incomplete or incorrect and if the additional or corrective information has not otherwise been made known to the other parties during the discovery process or in writing.

[16] Topic describes:

> Any and all offers, proposals, and negotiations regarding the terms of any agreement regarding aftermarket sales, including but not limited to repairs, overhauls, replacements, replacement parts, spare parts and maintenance service agreements, whether or not the sale of the APU and/or the agreement regarding aftermarket sales was ultimately executed. Tr. at 1279.

[17] Sundstrand asserts that this information became relevant when they first received information on Honeywell's damages methodology. The court notes that on cross-examination, Sundstrand took issue with Ms. Davis valuation methodology because she did not rely on sole source agreement. *See* Tr. at 1280.

erred because it had provided additional corrective information at Johanson's 30(b)(6) deposition. Sundstrand further argues that Honeywell should have moved to compel discovery of sole source information. Upon considerations of Sundstrand's motion for a new trial, the court finds that it did not err in excluding Johanson's testimony. Pursuant to Federal Rule of Civil Procedure 37(c),[18] the court determined that Sundstrand would not be allowed to use this information at trial because Honeywell was prejudiced by Sundstrand's failure to comply with rule 26(e)(2). Although Sundstrand disagrees with the court's ruling, the court was well within its discretion in excluding this information. *See Newman v. GHS Osteopathic, Inc.*, 60 F.3d 153, 156 (3d Cir. 1995). Moreover, errors in judicial rulings or in the conduct of the court warrant a new trial where the error or conduct was prejudicial. *See Medtronic Inc. v. Intermedics Inc.*, 799 F.2d 734, 740 (Fed. Cir. 1986). Sundstrand posits that Johanson's testimony would have had a "profound impact on trial, particularly in view of Honeywell's position that it would not have granted any of the concessions it claimed 'but for" Hamilton Sundstrand's competition." D.I. 276 at 18 n.4. The court finds, however, that it is not clear that Johanson's testimony would have had a profound impact, especially in light Mr. Albert's testimony that Honeywell sometimes grants some concessions for other reasons. *See e.g.*, Tr. at 882-83 (describing launch concessions which are offered when a new aircraft is introduced in the marketplace). Thus,

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18 Fed.R.Civ.P. 37(c) reads

> A party that without substantial justification fails to disclose information required by Rule 26(a) or 26(e)(1), or to amend a prior response to discovery as required by Rule 26(e)(2), is not, unless such failure is harmless, permitted to use as evidence at a trial, at a hearing, or on a motion any witness or information not so disclosed.

the court concludes that Sundstrand has also not demonstrated that the exclusion of Johanson's testimony was prejudicial.

Sundstrand also argues that the court erred in allowing Davis to testify because she was not qualified to testify as an expert under Federal Rule of Evidence 702 or 703. In particular, Sundstrand alleges that Davis has no specific expertise in the aerospace industry and that she relied solely on information provided to her by Mr. Albert. The court will deny Sundstrand's request for a new trial on this issue because the court did not err in admitting Davis as an expert. First, it is clear that Davis was qualified to testify as an expert in this case. Davis is the worldwide co-partner in charge of the international accounting firm of Arthur Andersen. She has been retained as many as 60 times as an expert on damages in intellectual property cases. *See* Tr. at 1093-1095. *But see Crystal Semiconductor*, 246 F.3d at 1355 (explaining that district court found that damages expert was not qualified because he had minimal specialized academic credentials and minimal experience with patent damages). In addition, as the court has already explained, price erosion damages can be supported by the testimony of a patent owner. In light of this fact, the court found that Davis met with the requirements of Federal Rule of Evidence 703.[19]

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[19] FRE 703 reads:

> The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting

Finally, Sundstrand argues that it is entitled to a new trial because Honeywell's counsel made a misrepresentation to the jury, and his misrepresentation was exacerbated by the court's erroneous instruction on this issue. The court granted Sundstrand's motion for summary judgment on the issue of Honeywell's failure to mark the '194 and '893 patents. This ruling precluded Honeywell from recovering damages for infringement alleged to have occurred prior to February 3, 1999, the date of actual notice to Sundstrand. *See* D.I. 184. In his opening statement, Honeywell's counsel referred to the precluded damages. *See* Tr. at 198-199 ("We should be able to go back to May of 1993 to recover damages. But that's not the way it's going to work in this case . . . ."). Sundstrand objected and alerted the court that it intended to submit a curative amendment to the appropriate jury instruction. *See* Tr. at 244. Sundstrand then submitted a proposed revised jury instruction; on February 14, 2001, Honeywell agreed to Sundstrand's instruction.[20] Sundstrand alleges that Honeywell later misconstrued their proposed amendment to the instruction in an effort to confuse the jury. In other words, Sundstrand contends that the use that

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the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.

20 The relevant instruction, Joint Instruction 5.3, initially read: "You are instructed that Honeywell may only recover for alleged acts of infringement that occurred on or after February 3, 1999." The agreed to curative Instruction 5.3 read: "You are instructed that Honeywell may only recover for alleged acts of infringement that occurred on or after February 3, 1999. There was some reference during the trial to rulings that I made before the trial began, setting February 3, 1999 as the starting date of any proof of damages. You are not to consider any possibility that Honeywell may have incurred damages prior to that date, and your finding of damages, if any, should not be influenced in any way by conjecture about Honeywell's prices or concessions in transactions that occurred prior to February 3, 1999."

Honeywell subsequently made of the instruction differed from its intention in proposing the instruction. Sundstrand objected and then proposed another amended instruction. The court overruled Sundstrand's objections and rejected the second proposed revision to the instructions. *See* Tr. At 2185. The court subsequently charged the jury with the agreed upon curative instruction. *See* Tr. At 2459-60.[21]

As the court has already explained, a new trial on the ground of erroneous instruction is permissible only when it is clear that an error in the instructions as a whole was such as to have misled the jury. *See New Idea Farm Equip. Corp. v. Sperry Corp.*, 916 F.2d at 1567. As previously noted, in evaluating a motion for a new trial due to an alleged legal error in jury instructions, the court must determine (1) whether an error was in fact committed, and (2) whether the error was so prejudicial that denial of a new trial would be "inconsistent with substantial justice." *Lafate v. Chase Manhattan Bank*, 123 F.Supp.2d at 785.

The court finds that a new trial is not warranted in this case because Sundstrand has not demonstrated that the instruction the court read was erroneous or, even if it was, that it was prejudicial. The court read the curative instruction proposed by Sundstrand word for word. Moreover, a party who requests an instruction cannot complain if the instruction, or one substantially like it, is given. *Tuttle v. Equifax Check*, 190 F.3d 9, 16 (2d Cir. 1999) (citations omitted). Therefore, the court will deny Sundstrand's motion for a new trial based on the charge that the court's jury instructions were erroneous.

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21 Sundstrand asserts that the court "subsequently charged the jury *without any curative text.*" D.I. 286 at 21 (emphasis added). The court notes that this statement is inaccurate, as the court did read the agreed upon curative instruction.

3. Whether Sundstrand is Entitled to Judgment as a Matter of Law, or in the Alternative, a New Trial on Willfulness?

Sundstrand argues that it is entitled to judgment as a matter of law because the evidence is legally insufficient to support the jury's finding that Sundstrand willfully infringed. In the alternative, Sundstrand moves for a new trial on the issue of willfulness. The court will first address Sundstrand's motion for judgment as a matter of law, then it will turn to Sundstrand's motion for a new trial.

a. Judgment as a Matter of Law

Sundstrand argues that the court should overturn the jury's verdict because Honeywell's willfulness contentions were incorrect under the applicable law and because the evidence offered in support of Honeywell's willfulness contentions was insufficient as a matter of law.

First, Sundstrand argues that Honeywell "effectively reversed the analysis . . . on this point, arguing that all it needed to prove is that Hamilton Sundstrand employees knew that the Stokes patents existed, and then Hamilton Sundstrand needed to prove that it had a reasonable basis for acting as it did in the fact of that knowledge . . . . This is not the law, nor should it be the law." D.I. 286, at 29. Thus, Sundstrand claims the jury's finding of willfulness in this case was inappropriate because the employees who worked with the APS 3200 were not aware of the patent, and those who had encountered the patent neither suspected infringement nor had any reason to do so. Sundstrand argues that to trigger the alleged infringer's duty to exercise due care in the face of knowledge about the patent, the patent owner must show that the accused infringer both knew about the patent and understood that the patent raised a potential infringement problem. In support of its argument,

Sundstrand cites to *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 628 (Fed. Cir. 1985). However, the Federal Circuit in *Stryker Corp. v. Intermedics Orthopedics, Inc.*, clearly rejected any claim that actual notice requires both knowledge of the patents and knowledge of a problem of infringement. 96 F.3d 1409, 1415 (Fed. Cir. 1996). The accused infringer in *Stryker Corp.* also cited to *Shatterproof Glass* in arguing that in order to have actual notice, the infringer had to know of the patents and understand the potential related infringement problems. *See id.* In rejecting the accused infringer's arguments, the *Stryker* court described the argument as "flawed," and explained that the infringer's reliance on *Shatterproof Glass* was misplaced. *See id.* In light of *Stryker Corp.*, the court finds Sundstrand's claim that actual notice requires both knowledge of the patent and knowledge of the potential for infringement to be unpersuasive.

Second, Sundstrand contends that the jury's finding of willful infringement was not supported by substantial evidence. Sundstrand argues that Honeywell based its willfulness contentions on evidence that certain Sundstrand engineers and lawyers were made aware of the patents-in-suit when these patents were cited as prior art during the prosecution of six patents between 1986 through 1992. Sundstrand contends that this is insufficient to show meaningful notice, or that Sundstrand acted deliberately and intentionally. Sundstrand also contends that the six patents were not related to the APS 3200. Thus, there is no evidentiary basis for the jury to conclude that they would have provided notice of the patents-in-suit. Finally, Sundstrand also states that the testimony of Alan Gruebel, an APS 3200 controls engineer involved with the surge control logic during its formation, established that none of the Sundstrand employees who worked with the APS 3200 had knowledge of the six prior art references that referred to the Stokes patent.

Upon consideration of the record, the court finds that there was substantial evidence in the record to support the jury's finding of willfulness. Although Sundstrand claims that Honeywell's case is based on the fact that a handful of Sundstrand employees knew of the patents, but did not know of the potential for infringement, the court finds that the jury could have reasonably concluded that Sundstrand willfully infringed the patents-in-suit. In total, Honeywell offered evidence that more than a dozen Sundstrand engineers and lawyers had notice of the Honeywell patents by the early 1990s.

Honeywell offered evidence form which a jury could reasonably conclude that certain Sundstrand engineers who worked on the APS 3200 learned of the Honeywell surge control patents during the time that the APS 3200 was in development. For example, Honeywell offered evidence that Bill Treece, Sundstrand's director of engineering, and the chief engineer for the Sundstrand APU operation, wrote a memorandum to Sundstrand's patent attorney "requesting legal advice regarding potential patent infringement by competitor[s]," and that memorandum "include[ed] reference to the '194 patent." *See* PTX 206 at 2. Honeywell also presented evidence that Alan Gruebel's immediate manager, Steve Lampe, received a memorandum from Sundstrand's patent attorney that included reference to the '194 patent. *See* PTX 206 at 4. Gruebel testified that Lampe had some input into the APS 3200 surge control design. *See* Tr. at 1719.

Honeywell also offered evidence that Harold Williamson, senior attorney on Sundstrand's patent counsel staff had communications with Sundstrand engineers that contained references to the '194 patent. *See* PTX 206 at 1-4. In addition, Honeywell presented evidence that Sundstrand's outside patent counsel knew about the Honeywell surge

control patents. For example, Honeywell introduced evidence that Sundstrand's counsel, William Van Santen, acknowledged that he had a copy of the '194 patent and had disclosed that patent to the Patent Office in 1988 as being pertinent to one of Sundstrand's surge control patent applications. *See* Tr. 783-86, 796-97, PTX 216. Honeywell also offered evidence showing that it was Van Santen's practice to review patents he disclosed to the Patent Office. *See* Tr. at 781-82.

Honeywell also presented evidence that Sundstrand engineers had knowledge of and examined Honeywell's surge control system during its development of the APS 3200. For example, Honeywell introduced evidence which showed that Sundstrand had access to a document which discussed the operation of Honeywell's APUs. *See* Tr. at 529-30; PTX 65. This document was forwarded to four Sundstrand engineers who were working at the time on developing the control system for the APS 3200. *See* Tr. at 529. Honeywell also offered evidence that Sundstrand engineers knew about some aspects of Honeywell's patents. For example, Peter Suttie, project engineer for the control system of the APS 3200, testified that he "liked" certain aspects of the Honeywell design. *See* Tr. at 530.

In light of the record, the court concluded the jury's finding that Sundstrand willfully infringed the patents-in-suit was supported by substantial evidence. Therefore, the court will deny Sundstrand's motion for judgment as a matter of law.

b. Motion for a New Trial

Sundstrand first argues that the jury's verdict of willful infringement is against the clear weight of the evidence. In light of the evidence presented at trial, the court finds that contention to be unpersuasive. Sundstrand further

contends that it is entitled to a new trial because the court erroneously charged the jury on the issue. As a result of the court's alleged erroneous instruction, Sundstrand argues that the court effectively determined that any infringement would be willful.[22] According to Sundstrand, the court erred by not including its proposed instruction, which would have included language on the duty to investigate.[23] Sundstrand

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22 The relevant part of the court's instruction on willfulness reads:

> If you find that Hamilton Sundstrand infringed any of the claims of Honeywell's patents, and that such claims are valid, then you must further determine if the infringement was willful. Willful infringement requires proof that under the totality of the circumstances the accused infringer had actual knowledge of the patent and had no reasonable basis for believing that its product or process did not infringe the patent or that the patent was invalid. In defense, the infringer may rely on an opinion of counsel, that the patent is invalid, unenforceable, or not infringed if the infringer obtained the opinion promptly, if the opinion is competent, and if the reliance is in good faith. Honeywell must prove the willfulness of any infringement by clear and convincing evidence. If you find Honeywell has proven that Hamilton Sundstrand knew about the patent and did not exercise due care to determine whether or not it was infringing the patent, you may find that Hamilton Sundstrand's infringement was willful. Once a party obtains knowledge of a patent, it has an affirmative duty to exercise due care not to infringe the patent.

23 Sundstrand proposed the following:

> In determining whether Hamilton Sundstrand had knowledge of the patents before [the relevant date], you should consider which of Hamilton Sundstrand's employees have been shown to have had information relating to the patents before that date and whether or not those employees were themselves engaged in activities related to the company's alleged infringing

argues that by not giving the jury its proposed instruction, the court did not inform the jury that it could consider the context in which the individual employees came to know of the patents, or whether those employees appreciated the potential relationship between the accused device and the patents. Sundstrand further states that the jury was left to conclude that the duty to investigate was triggered because a handful of Sundstrand's employees and certain lawyers encountered the Stokes patents in a context wholly unrelated to the APS 3200. In essence, Sundstrand asserts that "[b]y not clarifying the meaning of corporate 'intent' in these circumstances, the Court's instruction misstated the contours of the willfulness doctrine, and it did so to Hamilton Sundstrand's prejudice." D.I. 276 at 37.

In rejecting Sundstrand's proposed instruction, the court found that Sundstrand had failed to provide sufficient legal support for the proposition that there need be a particularly sufficient connection between Sundstrand employees who knew of the patents and the infringing APS 3200. *See* Tr. at 2359. Furthermore, the court instructed the jury that willfulness is to be determined under the totality of the circumstances. In looking at the totality of the circumstances, the jury would have necessarily looked at the context of the employees knowledge about the patents. Considering the lack of legal support for Sundstrand's

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conduct at that time. For you to find that Hamilton Sundstrand had knowledge of the patents before February 3, 1999, Honeywell must show that the employees of Hamilton Sundstrand who you may find were aware of the patents had at that time a sufficient connection to the alleged infringement so that they would have a basis to cause Hamilton Sundstrand to consider the patents in connection with its decision-making about the allegedly infringing product. D.I. 276, at 37

proposed instruction and considering that the jury was instructed to determine willfulness under the totality of the circumstances, the court finds that it did not commit error in instructing the jury on willfulness. *See Lafate v. Chase Manhattan Bank*, 123 F.Supp.2d at 785 (explaining that the court must determine first, whether an error was in fact committed, and second, whether the error was prejudicial, in deciding if a new trial is warranted.)

D. Honeywell's Motion for Treble Damages, Attorneys Fees, Costs and Expenses and Prejudgment Interest.

Honeywell argues that the court should treble the jury's actual damages award and award it attorney's fees and costs. Honeywell further argues that it is entitled to prejudgment and post-judgment interest on the jury's damages award.

1. Whether Honeywell is Entitled to Enhanced Damages, Attorney's Fees, and Costs?

When there is a finding of willful infringement, 35 U.S.C. § 284 gives the court discretion to increase the damages up to three times the amount found. A patentee is entitled to up to treble damages upon a finding of willfulness. *See* 35 U.S.C. § 284; *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 826 (Fed. Cir. 1992). A finding of willfulness, however, does not mandate enhanced damages, much less treble damages. *See Cybor Corp. v. FAS Techs, Inc.*, 138 F.3d 1448, 1451 (Fed. Cir. 1998) (citing *Modine Mfg. Co. v. The Allen Group, Inc.*, 917 F.2d 538, 543 (Fed. Cir. 1990)); *Read*, 970 F.2d at 826. "Rather, '[t]he paramount determination [for enhanced damages] . . . is the egregiousness of the defendant's conduct based on all the facts and circumstances.'" *Electro Scientific Indus., Inc. v. General Scanning, Inc.*, 247 F.3d 1341, 1353 (Fed. Cir.

2001) (citation omitted). Thus, enhancement of damages is within the discretion of the district court and is informed by the totality of the circumstances. *See State Indus., Inc. v. Mor-flo Indus., Inc.*, 948 F.2d 1573, 1576 (Fed. Cir. 1991).

The Federal Circuit has identified a number of factors to consider when deciding whether to enhance damages. These facts include: (1) evidence that the infringer deliberately copied the ideas or designs of the patentee; (2) evidence that the infringer knew of the other's patent, investigated the scope of the patent, and formed a good-faith belief that it was invalid or that it was not infringed; (3) evidence of the infringer's behavior as a party to the litigation; (4) evidence of the infringer's size and financial condition; (5) evidence as to the closeness of the case; (6) evidence regarding the duration of the infringer's conduct; (7) evidence showing remedial action by the defendant; (8) evidence regarding defendant's motivation for harm; and (9) evidence as to whether the defendant attempted to conceal its misconduct. *See Read*, 970 F.2d at 826-29.

Upon consideration of the parties' submissions and the *Read* factors, the court finds that enhanced damages are not warranted in this case under 35 U.S.C. § 284. Although the evidence was sufficient to support the jury's finding of willfulness, the court finds that the evidence was not strong enough to warrant enhanced damages. Honeywell supports its willfulness argument by citing a broad range of circumstantial evidence, however, there was little direct evidence which evinced the sort of a culpable mindset that would make enhanced damages appropriate in this case. *But see e.g., SRI Int'l, Inc. v. Advanced Tech. Laboratories, Inc.*, 127 F.3d 1462, 1465-67 (Fed. Cir. 1997) (affirming district court's award of treble damages where memoranda and letters from the infringer's engineers sated that "we probably are infringing"). Also, the court finds that Sundstrand defenses although ultimately unsuccessful, were not frivolous

and were litigated in good faith. Moreover, Sundstrand mounted a substantial challenge to Honeywell's infringement contentions. The issue of infringement was a close case. *See e.g., C.R. Bard, Inc. v. Medtronic, Inc.*, No. 96-589-SLR, 1999 WL 458305, at *14 (D.Del. June 15, 1999). The court also finds that enhancement is inappropriate because, although the jury found that Sundstrand's infringement was willful, there is evidence that Sundstrand was partially motivated by economic pressure in the form of customer dissatisfaction. *See e.g.*, DTX 1602; *Read*, 970 F.2d at 827. Therefore, the court finds that enhancement of damages is inappropriate in this case.

For these same reasons, the court declines to find that this case is an "exceptional case" under 35 U.S.C. § 285. Section 285 provides that "in exceptional cases [the court] may award reasonable attorney fees to the prevailing party." Thus, the court will deny Honeywell's motion for attorney's fees and costs.

2. Whether Honeywell is Entitled to Prejudgment and Post-Judgment Interest?

Prejudgment interest should ordinarily be awarded absent some justification for withholding such an award. *General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 657, 103 S. Ct. 2058, 76 L.Ed.2d 211 (1983). The United States Supreme Court stated that the award of prejudgment interest reflects the Patent Act's provision of complete compensation for the patent owner. *General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 655, 103 S. Ct. 2058, 76 L.Ed.2d 211 (1983). Thus, a court should award prejudgment interest unless it has some justification for withholding such an award. *Id.* at 657, 103 S.Ct. 2058. Generally, prejudgment interest extends from the date of infringement to the date of judgment.

In this case, Honeywell seeks prejudgment interest on its reasonable royalty damages award and on its price erosion damages award. The court will grant Honeywell's motion for prejudgment interest on the reasonable royalty award. *See e.g., Joy Tech., Inc. v. Flakt, Inc.*, 954 F. Supp. 796, 808 (D. Del 1996) (awarding prejudgment interest on a reasonable royalty award).

The court will, however, deny Honeywell's motion for prejudgment interest on price erosion damages. At trial, Honeywell's expert, Julie Davis, testified to the jury that she included prejudgment interest in her damages calculation. Tr. at 1153. In light of this testimony, the court finds that the jury reasonably would have included prejudgment interest in its damages award. *See Graco Children's Prods., Inc. v. Century Prods. Co.*, No. Civ. A. 93-6710, 1996 WL 421966, at *35 (E.D. Pa. July 23, 1996) (denying motion for prejudgment interest where prevailing party included prejudgment interest as a part of the damages calculation it represented to the jury).

Finally, Honeywell also seeks post-judgment interest pursuant to 28 U.S.C. § 1961, which states that "[i]nterest shall be allowed on any money judgment in a civil case recovered in a district court." The court will also grant Honeywell's motion for post-judgment interest.

IV. CONCLUSION

For the foregoing reasons, the court finds that the jury's verdict was supported by substantial evidence. Therefore, the court will deny Honeywell's motion for judgment as a matter of law on the issue of literal infringement of Claim 4 of the '194 patent and Sundstrand's motions for judgment as a matter of law on the issues of liability, willfulness, and damages. In addition, the court finds that a new trial is not warranted on any issues and,

therefore, will deny Sundstrand's motions for a new trial on all issues. In addition, the court finds that Honeywell is not entitled to enhanced damages or attorney's fees and costs. Finally, the court finds that Honeywell is entitled to post-judgment interest, and prejudgment interest on its reasonable royalty damages, but not prejudgment interest on its price erosion damages. The court will issue an order in conjunction with this opinion.

ORDER

For the reasons stated in the court's Memorandum Opinion of this same date, IT IS HEREBY ORDERED that:

1. Honeywell's Motion For Judgment as a Matter of Law on the Issue of Literal Infringement is DENIED;
2. Sundstrand's Motion For Judgment as a Matter of Law and For a New Trial on Issues Pertaining to Liability is DENIED;
3. Sundstrand's Motion for Judgment as a Matter of Law and for a New Trial on Issues Pertaining to Damages and Willfulness is DENIED;
4. Honeywell's Motion for Treble Damages, Fees, Costs, and Interest is DENIED in part and GRANTED in part;

    a. Honeywell's Motion for Treble Damages and Attorney's Fees and Costs is DENIED;

    b. Honeywell's Motion for Prejudgment Interest on Price Erosion Damages is DENIED; and

    c. Honeywell's Motion for Prejudgment Interest on Reasonable Royalty Damages and Post-Judgment Interest is GRANTED.

UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

No. Civ. A. 99-309 GMS.
Jan. 8, 2001

HONEYWELL INTERNATIONAL INC., and HONEYWELL INTELLECTUAL PROPERTIES, INC.,

Plaintiffs,

v.

HAMILTON SUNDSTRAND CORPORATION,

Defendant.

Josy W. Ingersoll, Young Conaway Stargatt & Taylor LLP, Wilmington, DE, Jonathan F. Putnam, Lee Ann Stevenson, Kirkland & Ellis, New York, NY, Robert J. Krupka, Kirkland & Ellis, Los Angeles, CA, for Plaintiff, of counsel.

Richard D. Kirk, Morris, James Hitchens & Williams LLP, Wilmington, DE, Richard F. Ziegler, David H. Herrington, Justin S. Anand, Cleary, Gottlieb, Steen & Hamilton, New York, NY, William E. McCracken. G. Christopher Braidwood, Thomas Miller, Marshall O'Toole, Gerstein, Murray & Borun, Chicago, IL, for Defendant, of counsel.

MEMORANDUM AND ORDER

SLEET, J.

Honeywell International Inc. ("Honeywell") filed this against Hamilton Sundstrand ("Sundstrand") in May of 1999 alleging that Hamilton Sundstrand Corporation

("Sundstrand") is infringing three Honeywell patents: the 4,380,893, 4,428,194 and the 4,337,615 (the "'893 patent," "'194 patent," and the "'615 patent," respectively).[1] The lawsuit relates to technology for auxiliary power units ("APU"). An APU is a small gas turbine engine, usually placed in the tail section of an airplane, that generates electricity for use while the aircraft is on the ground or in flight. An APU also provides compressed air for both starting the aircraft's main engine and environmental control of cabin air. Presently before the court is Sundstrand's Motion for Summary Judgment with regard to infringement and validity of Honeywell's '893 and '194 patents.

I. FACTS

Honeywell alleges that Sundstrand's APU, the APS 3200, infringes its '893 and '194 patents. Specifically, Honeywell contends that the APS 3200 literally infringes claim 4 of the '194 patent and that it infringes the remaining asserted claims of both patents under the doctrine of equivalents. The '893 and '194 patents claim an apparatus and method for a system to control the aerodynamic phenomenon called surge in a compressor. The '893 and '194 patents were issued in 1983 and 1984, respectively, from the same original application. The '893 patent specifically claims an apparatus that embodies the control logic for the surge control system. The '194 patent specifically claims the method of using the control logic.

In its motion, Sundstrand argues that its APS 3200 does not literally infringe claim 4 of the '194 patent and that it does not infringe the remaining asserted claims of either patent under the doctrine of equivalents. Furthermore,

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[1] On January 2, 2001, Honeywell advised the court that it has decided to no longer pursue its claims under the '615 patent.

Sundstrand contends that the '893 and '194 patents are invalid because both patents were anticipated by the prior art. Specifically, Sundstrand alleges that Claim 4 of the '194 patent and Claims 1, 12, 15, 19 and 23 of the '893 patent were anticipated by two articles. Sundstrand also argues that both the '893 and '194 patents are obvious in view of the prior art.

II. STANDARD OF REVIEW

"Summary judgment is appropriate only when 'there is no genuine issue as to any material fact and . . . the moving party is entitled to a judgment as a matter of law.'" *Rodime v. SeagateTech. Inc.*, 174 F.3d 1294, 1301 (1999) (quoting Fed. R. Civ. P. 56(c)). In reviewing the motion, the court must draw all reasonable inferences in favor of the non-movant. *See id.* (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986)).

III. DISCUSSION

A. Validity

First, Sundstrand argues that the '893 and '194 patents are invalid because (1) they were anticipated by prior art and (2) they are both obvious in light of prior art. Under 35 U.S.C. § 382, a patent is presumed valid and the party attacking the validity has the burden of proving invalidity by clear and convincing evidence. *See* 35 U.S.C. § 382 (1984). "Clear and convincing evidence is evidence which proves in the mind of the trier of fact an abiding conviction that the truth of [the] factual contentions [is] highly probable." *See Jack Frost Labs v. Physicians & Nurses Manu. Corp.*, 901 F. Supp. 718, 727 (S.D.N.Y. 1995) (internal quotations omitted). Thus, Sundstrand must provide clear and convincing evidence that the '893 and '194 patents are invalid under either the doctrine of anticipation or

obviousness before the court can grant summary judgment on these issues.

1. Anticipation

A claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference. *Celeritas Techs., Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998), *cert denied*, 525 U.S. 1106 (1999). Accordingly, invalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. *Advance Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). The prior art need not state the elements of the claim in identical language. *See Proctor & Gamble v. Nabisco Brands, Inc.*, 711 F. Supp. 759, 762 (D. Del. 1989). Anticipation is a question of fact. *See in Re Graves*, 69 F.3d 1147, 1151 (Fed. Cir. 1995).

After reviewing the prior art references cited by Sundstrand, it is not clear that these articles anticipated the inventions at issue. Honeywell has adduced sufficient facts to show that there are genuine issue of material fact in dispute for a jury to resolve. Specifically, the parties dispute whether each and every limitation is found either expressly or inherently in the prior art references. This dispute in particular should be considered by a jury. There is also a factual dispute as to whether a person of ordinary skill in the art could practice the invention based on the prior art reference. Because there are factual issues to be determined by a jury, the court will deny Sundstrand's motion for summary judgment on the issue invalidity due to anticipation by prior art.

2. Obviousness

Section 103 prohibits the granting of a patent "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a) (1984). The ultimate determination of whether an invention would have been obvious under 35 U.S.C. § 103(a) is a legal conclusion based on underlying findings of fact. *In re Kotzab*, 217 F.3d 1365, 1369 (Fed. Cir. 2000). To determine the question of obviousness, the court should look to: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; (3) the level or ordinary skill in the art; and (4) objective evidence of nonobviousness. *Riverwood Int'l Corp. v. The Mead Corp.*, 212 F.3d 1365, 1366 (Fed. Cir. 2000) (citing *Graham v. John Deer Co.*, 383 U.S. 1, 17 (1966)). "Such secondary considerations as commercial success, long felt but unsolved needs, [and] failure of others [to invent] are also relevant to the obviousness inquiry." *Ryko Manu. Corp. v. Nu-Star, Inc.*, 950 F.2d 714, 716 (Fed. Cir. 1991) (internal quotations omitted).

Obviousness may not be established using hindsight. *See Kahn v. General Motors Corp.*, 135 F.3d 1472, 1479 (Fed. Cir. 1998). In determining obviousness, the invention must be considered as a whole and the claims must be considered in their entirety. *Id.* at 1479-80. Moreover, when obviousness is based on a combination of two or more particular prior art references, there must be a showing of a suggestion or motivation to combine the teachings of those references, though it need not be expressly stated. *Riverwood* at 1366. The ultimate determination of obviousness is a question of law based on underlying factual determinations. *Para-Ordnance Manufacturing Inc. v. SGS Importers Int'l Inc.*, 73 F.3d 1085, 1088 (Fed. Cir. 1995).

After considering the submissions of the parties, the court will also deny summary judgment on the issue of obviousness because there are outstanding factual disputes that should be resolved by a jury. For example, Honeywell disputes Sundstrand's description of the scope and content of the prior art. Honeywell also disagrees with Sundstrand as to the differences between the prior art references cited and the claims at issue. Moreover, Sundstrand does not present sufficient evidence as to the level of nonobviousness. Finally, Honeywell alleges that there are secondary factors that the court should consider that would render its invention nonobvious. Thus, the court will deny Sundstrand's motion for summary judgment as to the issue of the obviousness of the '893 and '194 patents because Honeywell has adduced sufficient evidence to show that there is a genuine issue of material fact for a jury.

B. Infringement

Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device i.e., when "the properly construed claim reads on the accused device exactly." *KJC Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1358 (Fed. Cir. 2000). A device that does not literally infringe a claim may nonetheless infringe under the doctrine of equivalents if every element in the claim is literally or equivalently present in the accused device. *Sage Products, Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1423 (Fed. Cir. 1997). A claim element is equivalently present in an accused device if only "insubstantial differences" distinguish the missing claim element from the corresponding aspects of the accused device. *Id.* Determinations of infringement, whether literal or under the doctrine of equivalents, is a factual matter normally reserved for a fact finder. *See Tate Access Floors, Inc. v. Maxcess Techs. Inc.*, 222 F.3d 958, 964 (Fed. Cir. 2000).

1. Literal Infringement of Claim 4 of the '194 Patent

First, the court will deny summary judgment as to literal infringement of Claim 4 of the '194 patent because Honeywell has managed to adduce facts which preclude the court from ruling in Sundstrand's favor as a matter of law on this issue. In particular, Honeywell has provided evidence demonstrating that there is a genuine factual dispute as to whether every element of Claim 4 of the '194 patent is embodied in Sundstrand's APS 3200. *See Honeywell's Opposing Brief,* D.I. 129, at 10-12.

2. The Doctrine of Equivalents and Prosecution History Estoppel Analysis

In its submissions,[2] Sundstrand argues that Honeywell cannot maintain its claims for infringement under the doctrine of equivalents in light of the Federal Circuit's decision in *Festo Corp. v. Kinzoku Kogyu Kabushiki Co.*, 2000 WL 1753646 (Fed. Cir. Nov. 29, 2000). In *Festo*, the Federal Circuit held that:

> When a claim amendment creates prosecution history estoppel with regard to a claim element, there is no range of equivalents available for the amended claim element. Application of the doctrine of equivalents to the claim element is completely barred (a "complete bar").

Id. at *9. In rejecting precedent, the *Festo* court reasoned that "[a] complete bar, unlike a flexible bar, thus lends certainty to the process of determining the scope of protection afforded by a patent. *Id.* at *17. Thus, "once an

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[2] Pursuant to Local Rule 7.1.2(c), Sundstrand sent a letter to the court advising it of new Federal Circuit case law on December 6, 2000.

element of a claim is narrowed by amendment for a reason related to patentability, that element's scope of coverage will not extend beyond its literal terms." *Id.*

Sundstrand contends that for each of the surge control patent claims at issue (other than claim 4 of the '194 patent), Honeywell is barred by prosecution history estoppel from asserting a claim for infringement under the doctrine of equivalents. Specifically, Sundstrand argues that during the prosecution of the '893 and '194 patents, the PTO Examiner rejected all of the claims that did not include the key element at issue based on the prior art and stated that he would only allow dependent claims that included this key element if rewritten into independent form. Sundstrand claims that based on this rejection, Honeywell amended its claims to incorporate the element at issue into the independent claims and canceled the original claims that lacked this element. Thus, Sundstrand contends, that when Honeywell amended its claims to rely on this key element to overcome the prior art, it created prosecution history estoppel. Thus, Sundstrand now argues that prosecution history estoppel now applies regarding the inlet guide vane position element.

Honeywell argues that the claims at issue were not rejected based on prior art. Instead, Honeywell contends that the patent examiner "objected" to these claims as written. Honeywell further claims that the patent examiner did allow these claims, however, if they were "rewritten in independent form." Thus, according to Honeywell, the key element at issue was not amended during prosecution of the patents and the *Festo* decision would not apply to this case.

"Prosecution history estoppel precludes a patentee from obtaining under the doctrine of equivalents coverage of subject matter that has been relinquished during the prosecution of its patent application." *Festo*, (quoting *Pharmacia & Upjohn Co. v. Mylan Pharms., Inc.*, 170 F.3d

1373, 1376 (Fed. Cir. 1999)). In other words, "[t]he essence of prosecution history estoppel is that a patentee should not be able to obtain, through the doctrine of equivalents, coverage of subject matter that was relinquished during prosecution to procure issuance of the patents." *Hoganas AB v. Fresser Indus., Inc.*, 9 F.3d 948, 952 (Fed. Cir. 1993) (citation omitted). "The logic of prosecution history estoppel is that the patentee, during prosecution, has created a record that fairly notifies the public that the patentee has surrendered the right to claim particular matter as within the reach of the patent." *Festo*, at *3. In fact, the *Festo* court describes the functions of prosecution history estoppel as preserving the notice function performed by the claims and preventing patent holders from recapturing under the doctrine of equivalents subject matter that was surrendered before the Patent Office. *See id.* at *6. Whether prosecution history bars an assertion of infringement under the doctrine of equivalents is a matter of law for the court to decide. *See Festo* at *26. This decision can be made on a dispositive pretrial motion or at the close of evidence after a jury verdict. *See id.*

In order to determine if prosecution history estoppel will apply, the court must first determine which claim elements are alleged to be met by equivalents. *See Festo*, 2000 WL 1753646, at *27 ("The first step in a prosecution history estoppel analysis is to determine which claim elements are alleged to be met by equivalents."). In this case, the claim elements at issue involve "adjusting the set point in response to variations in the position of the inlet guide vanes" and the "delta P over" flow related parameter. *See* Honeywell's Opposing Brief, D.I. 129, at 16-22.

Then, the court must determine whether the elements at issue were amended during prosecution of the patent. *Festo*, 2000 WL 1753646, at *27. "If they were not, amendment-based estoppel will not bar the application of the

doctrine of equivalents." *Id.* "However, the court still may need to consider whether statements made during prosecution give rise to argument-based estoppel." *Id.* If the claim elements at issue were amended, the court first must determine whether the amendment narrowed the literal scope of the claim. *Id.* If so, prosecution history estoppel will apply unless the patent holder establishes that the amendment was made for a purpose unrelated to patentability. *Id.* If the patent holder fails to do so, prosecution history estoppel will bar the application of the doctrine of equivalents to that claim element. *Id.*

In this case, the parties dispute whether the elements at issue were actually amended. Thus, in order to resolve the dispute, the court must engage in a detailed review of the relevant prosecution history.

a. '893 Patent Prosecution History

When the '893 file application was filed, 52 claims were presented. *See* '893 File History, D.I. 138, at Ex. 9. The patent examiner initially determined that claims 41-52 were materially distinct from claims 1-40. *Id.* After an initial telephone conversation on this issue on August 27, 1982, the patentee withdrew claims 41-52 from consideration (subsequently, these claims were submitted in the application for the '194 patent). *Id.* Of the remaining claims, claims 1, 6, 11, 16, 21 and 32 were independent claims. The rest were dependent claims. *Id.*

Next, the patent examiner rejected claims 1-5, 11-15, and 21-40 for indefiniteness under 35 U.S.C. § 112. *Id.* Claims 28, 31, 34 and 37 were deemed ambiguous. *Id.* The following claims were rejected based on the prior art: 1-3, 6, 7, 10-13, 16, 19-22, 27-29, 32, 37, 38, 39 and 40. *Id.* In rejecting these claims, the examiner made specific reference to the relevant prior art and the reason for rejection relating

to each claim. *Id.* Thus, the only claims remaining were claims 8, 9, 17 and 18. All of these claims were dependent claims. Claims 8, 9, 17 and 18 involve the claim elements at issue in this case. The examiner objected to these claims because of their form, but stated that they would be "allowed if rewritten in independent form." *Id.*

b. '194 Patent Prosecution History

As discussed above, claims 41-52 of the original '893 application were submitted to the patent office. Of these claims, only 41, 48, and 52 were independent claims. *See id.* The patent examiner rejected claims 41-43, 44, 45, 48, 49 and 52 based on the prior art. *Id.* at Ex. 11. Only claims 46, 47, 50 and 51 remained. *Id.* Again, all of these claims were dependent claims and involved the claim elements at issue in this case. *Id.* Again, the examiner objected to these claims because of their form, but stated that they would be "allowed if rewritten in independent form." *Id.*

After reviewing the prosecution history, the court concludes that the elements at issue were not amended, and thus, prosecution history estoppel will not apply to this case. *See Festo*, at *27. Sundstrand argues that by canceling broader claims that lacked the inlet guide vane position element[3] and advancing only claims that included the element, Honeywell created the "classic basis" for prosecution history estoppel. D.I. 179. Thus, Sundstrand argues that a claim need not be rejected for prosecution history estoppel to apply. To support its position, Sundstrand cites to *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d

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[3] Although there are two elements at issue in this case, the parties only argue about the inlet guide vane element in their papers. Despite this omission in their papers, the court's analysis also applies to the "delta P over" flow related parameter element.

675, 681 (Fed. Cir. 1988) and *Builders Concrete, Inc. v. Bremerton Concrete Products Co.*, 757 F.2d 255, 260 (Fed. Cir. 1985). Although this argument has superficial appeal, the court is not persuaded that prosecution history estoppel applies in this case.

The key distinction between the present case and the cases cited by Sundstrand is that the patentees in those cases surrendered the elements at issue when they resubmitted their claims. For example, in *Diversitech*, the claim at issue also had not been substantively amended and was initially dependent on a broader claim that was rejected. *Id.* at 681. The patentee in that case, however, expressly made arguments before the PTO that surrendered the element at issue. *Id.* Thus, because "[t]he Board rejected and [the patentee] cancelled the only claims that were broad enough to encompass his disclosed embodiment of a pad with a thin layer of cement on the bottom," the patentee could not "now contradict the representations it made in order to obtain the allowed claims." *Id.*

Again, in *Builder's Concrete*, there was also no amendment to the claim at issue during prosecution. *See id.* at 260. It was still clear, however, that arguments made for the patentability of a different claim, claim 1, relinquished the elements at issue in that case. *See id.* "The fact that the 'passage' clause of patent claim 10 was not itself amended during prosecution does not mean that it can be extended by the doctrine of equivalents to cover the precise subject matter that was relinquished in order to obtain allowance of claim 1." *Id.*

In this case, Honeywell did not surrender the elements at issue during the prosecution of the patents at issue. "When an accused device is the same as a disclosed embodiment, and claims covering the disclosed embodiment were rejected on appeal and cancelled, the yielded claim

scope can not be recovered in order to encompass the accused device through the doctrine of equivalents." *Diversitech*, 850 F.2d at 681. Honeywell did not give up an embodiment of the invention with the inlet guide vane. In fact, this element was essentially all that was allowed. The patent examiner rejected substantially all of the original claims based on the prior art. However, the remaining dependent claims would be allowed if rewritten into independent form. Since the examiner had rejected all of the other claims, these claims had to be rewritten because they would no longer make sense as written in dependent form. In this case, the elements at issue were not surrendered at all. Prosecution history estoppel does not apply. Thus, in accordance with *Festo* , this court rules as a matter of law that Honeywell may attempt to convince the jury that Sundstrand's APU 3200 infringes under the doctrine of equivalents. *See Festo* at *26 (advising the court to rule as a matter of law on a pretrial dispositive motion whether prosecution history bars an assertion of infringement under the doctrine of equivalents).

As to the issue of infringement under the doctrine of equivalents, Honeywell has managed to adduce facts that create a genuine dispute over whether there is a substantial difference between the APS 3200 and claims 1-5, 8-15, 19, 22 and 23 of the '893 patent and claim 1 of the '194 patent. Because the court concludes that prosecution history estoppel does not apply here, and there are genuine issues of material fact in dispute, the court cannot rule as a matter of law that Sundstrand's APS 3200 does not infringe Honeywell's patents under the doctrine of equivalents.

For these reasons, IT IS HEREBY ORDERED that:

1. Hamilton Sundstrand's Motion for Summary Judgment with regard to infringement and validity of Honeywell's '893 and '194 patents (D.I. 103) is DENIED.

2. Honeywell is not barred by prosecution history estoppel from maintaining its claim of infringement of the '893 and '194 patents under the doctrine of equivalents.

UNITED STATES COURT OF APPEALS
FEDERAL CIRCUIT

02-1005, -1082

HONEYWELL INTERNATIONAL INC., and
Honeywell Intellectual Properties, Inc.,

Plaintiffs-Appellants,

v.

HAMILTON SUNDSTRAND CORPORATION,

Defendant-Cross Appellant.

ORDER
Entered February 5, 2004

Before MAYER, Chief Judge, NEWMAN, MICHEL, LOURIE, CLEVENGER, RADER, SCHALL, BRYSON, GAJARSA, LINN, DYK, and PROST, Circuit Judges.

This matter, having been argued before a panel of three judges on August 7, 2002, and thereafter, having been referred to the circuit judges who are in regular active service and a poll having been taken,

IT IS ORDERED THAT:

(1) The appeal will be decided en banc, without additional briefing.
(2) There will be no additional oral argument held.

Entered for the Court
JAN HORBALY, Clerk

UNITED STATES COURT OF APPEALS
FEDERAL CIRCUIT

02-1005, -1082

HONEYWELL INTERNATIONAL INC., and
Honeywell Intellectual Properties, Inc.,

Plaintiffs-Appellants,

v.

HAMILTON SUNDSTRAND CORPORATION,

Defendant-Cross Appellant.

ORDER
Entered February 26, 2004

Before MAYER, Chief Judge, NEWMAN, MICHEL, LOURIE, CLEVENGER, RADER, SCHALL, BRYSON, GAJARSA, LINN, DYK, and PROST, Circuit Judges.

Honeywell International Inc. and Honeywell Intellectual Properties Inc. (collectively "Honeywell") move for leave to file a 20 page supplemental brief and present additional oral argument. Honeywell advises that Hamilton Sundstrand does not consent to this motion.

Upon consideration thereof,

IT IS ORDERED THAT:

The motion is denied.

Circuit Judge Newman dissents to the denial of Honeywell's motion to file a brief.

Entered for the Court
JAN HORBALY, Clerk